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## A Page From Beekeeping History

How One Prophet Found that He Was Without Honor In His Own Country

By Kent L. Pellett

WHEN business conditions drove him, in 1863, to leave his home in Langres, France, and with his family to seek a living on a little brush farm near the banks of the Mississippi River, Charles Dadant intended to raise wine grapes. But the best wine making varieties were not hardy enough for the rigorous Illinois winters; grape raising was not very profitable, so he became a beekeeper.

When he arrived in this country there were whisperings of a new era in farming. Mechanical inventions, such as the reaper and the sewing machine, which were eventually to remove the farm from its isolation and to make of it a large-scale business, were making their appearance. And these whisperings were just as loud in beekeeping as in other branches of agriculture. Over ten years before, Langstroth had invented his movable frame hive, a German by the name of Mehring was now working with comb foundation, a few gold-banded bees had been brought over from Italy, and within a few years the son of an Italian major would swing a basket of honey around his head, giving the idea of the honey extractor. It is true that nobody clearly foresaw the revolution that these things would make in beekeeping, for they were just in their beginnings, and box-hives were still the rule. But there were rumors of fabulous honey crops: the American Agriculturist told the story of Moses Quinby, who had harvested 22,000 pounds of honey in one season.

It did not take long for Charles Dadant to discern the whisperings of the new things. He read of the Quinby harvest, and upon being told by a neighbor, who knew the ways of

In this account of the introduction of the modern hive to France, we introduce a new writer, the young son of the field editor. Those who remember how slowly the new methods were accepted in this country will not be surprised that the same was true also in France.

this country, that the American Agriculturist was a reputable magazine, he bought Quinby's book, and, becoming enthused by the author's methods, he made a few Quinby hives. He had a few of the easily propolized Debeauvoys leaf hives which he had built from memory like some he had used in France. Seeing the advantages of the new hives, he hastened to make them over, retaining, however, the square frames, instead of the long frames of the Quinby pattern. He borrowed other books on beekeeping, studying their methods, and when Samuel Wagner started again to publish the American Bee Journal, Charles Dadant subscribed. Within a few years he was raising Italian queens for sale to furnish the family with a little ready cash.

Thus, while living in a log house, struggling to make a living on his little brush farm, and trying to learn the language and all the bewildering new conditions of a foreign country, he was studying the most advanced works on beekeeping, and experimenting with all the new methods and equipment, while his neighbors were still content to prune their box-hives once a year.

Four years after his arrival in this

country he sent his first article to the American Bee Journal, telling of conditions in his small apiary. The article was followed by others, for Samuel Wagner welcomed the contributions of this spirited Frenchman who wrote with so much verve of his experiences and theories, yet who could with a few deadly thrusts lay bare the fallacies in the practices of others. Within a few years his name was becoming nearly as familiar in the columns of the Journal as those of such veterans as Langstroth, Dzierzon, Quinby, and Root.

Charles Dadant wanted to renew his touch with the mother country, and perhaps to write for the Journal some of the things to be learned from her age-old experience in beekeeping. In 1868, he asked a friend to subscribe to l'Apiculteur, the lone bee magazine of France, published in Paris by Professor Hamet. The friend left his subscription at Hamet's office, and Mrs. Hamet suggested that maybe the beekeeper of far-away Illinois would like to make some contributions to l'Apiculteur. Charles Dadant scanned the pages of the home paper eagerly, but he soon realized that France had nothing to teach the readers of the Journal. Immersed in usages, held for centuries, of straw skeps and smothering and pruning, if she had heard the whisperings of progress at all it was very faintly. Mr. Hamet thought that he was progressive in discouraging the sulphur pit. It was the new world which could help the old.

So Charles Dadant began writing for l'Apiculteur, telling of the American methods and conditions, and describing carefully his hives. Professor Hamet, not suspecting the lashing that his pet theories would soon receive, welcomed the new

writer, who was made a corresponding member of the Central Society of Apiculture. Dadant wrote of the advantages of the movable frames: how the beekeeper could see everything that went on in the hive, how he could rid his hives of the excess male population by substituting worker brood cells for drone-cells, how he could rid the hive of worms, how he could replace poor queens by better ones—these were just a few of the things that he pointed out. "I hope to prove in the following articles that the movable frame hive, **well handled**, is as superior to the box-hive as the threshing machine . . . is to the flail," he wrote. He told of the big harvests in this country, of the 22,000-pound crop of Quinby, and of one Illinois beekeeper who had taken three hundred pounds from one hive of Italian bees.

But the French beekeepers did not seem anxious to learn the new ways. They considered the movable frame hive a complicated thing, too expensive to be practical, and of no advantage except when the honey extractor was used with it. Mr. Poisson wrote that the movable combs would bring foulbrood, that extracted honey could never be first-class, for it would be sure to be full of pollen and even brood. He knew all about those things, for he "had made a hundred and twenty of the movable frame hives, of the best kind, with the frames always functioning well, even in winter." But he had discarded them, and used them only as a curiosity now. Mr. Poisson laughed at the big American harvests related by Dadant. In France twenty pounds was considered a good crop. "It might not be easy for Mr. Dadant to prevent his bees from drowning in the torrents of honey he sees gushing everywhere about the hive, or can he empty the frames every five minutes by means of the extractor? The stories of such apicultural marvels are harming beekeeping more than they serve it."

And the much titled Mr. Hamet, editor of *l'Apiculteur*, professor of beekeeping at the Luxembourg gardens, secretary general of the Central Society of Apiculture, director of experimental apiaries, and so on, in fact the most important beekeeper in France, delivered his supreme verdict against the movable frame hives: they were just playthings for amateurs, of little value for honey production. To be sure that this "mobiliste," as the movable frame hive men were known, did not mislead his subscribers, Mr. Hamet ridiculed the "boaster" in his editorials, asking the movable frame men to produce results on a large scale, and he riddled Dadant's articles with sarcastic footnotes.

Charles Dadant was not entirely alone in the columns of *l'Apiculteur*, for there were a few mobilistes, as Bastian and Dennler, who were writing, but the coldness shown toward the mobilistes and the biting sarcasm of Hamet had discouraged them in their efforts. But articles continued to come from the pen of Charles Dadant; he did not seem to be humiliated by the ridicule of the Luxembourg professor, for he had the unparalleled presumption to write, "I have imposed upon myself the task of reforming beekeeping in France, and I am certain of succeeding. I will pierce my little hole in the sombre veil before the eyes of the beekeepers and allow a feeble gleam to shine through from the American beacon. This glimmer will give courage to those who despair, and will prepare the eyes of the blind for the day when the veil, worm-eaten by the mites of progress, will be torn and will fall away." He asked Professor Hamet and his followers to wait ten years, and by that time they would see conditions in France such as they were in America. One who writes with so much assurance is either a fool or a prophet, and it would take years to reveal the status of Charles Dadant.

Though Mr. Hamet freely criticised Dadant's writings, he would not print Dadant's answers to his criticisms. Tired at last of the bombast which was deterring the French beekeepers from trying the American methods, Charles Dadant served Hamet with a clear-cut ultimatum—either the editor of *l'Apiculteur* would cease to criticise him in his columns and he would insert Dadant's responses to past criticisms or he would seek other publications for his writings. He wrote that he was sure of himself in this fight, and that Hamet had best stand aside, as his prestige with his subscribers was endangered.

The dignity of the Luxembourg professor was hurt. To think that this upstart from America would have the insolence to ask him, the first beekeeper of France, to stand aside and not to express his opinion in the columns of his own magazine! In an editorial burning with indignation, he declared that he would never have the weakness to tolerate such an imposition, and that the doors of *l'Apiculteur* were closed to all "fanatics of exclusive systems believing themselves sons of the sun."

But after reflecting, Mr. Hamet decided that he would not like to lose the American beekeeper. His writings were really a very good drawing card for *l'Apiculteur*, if he would just tame them a little. So Hamet wrote an assuaging letter.

Mr. Dadant's communications interested him infinitely, he said, and he would be prepared to publish them in full. He realized perfectly the success of the movable frames in America, and he would adopt them himself if he had only the time to care for them during the honeyflow. But—and Hamet became confidential—he had reasons for making an apparent opposition to them in *l'Apiculteur*. Movable frames were considered a luxury by three-fourths of his subscribers, who were against all things radical. Certain improvements that he himself had tried to make had lost for him some of his subscribers, some of the big men of the trade at that. He must be careful not to weary them too much with movable combs or other radical improvements. Mr. Dadant should see in him the politician, and an adversary who reflected and debated. "I may be a little rude, but I pray you to support me such as I am, and not to be more angry with me than I am with you."

But Charles Dadant wrote no more to *l'Apiculteur*, and his name was quietly dropped from the roll of the Central Society of Beekeeping, by its distinguished secretary, Mr. Hamet. His short and stormy career in the columns of *l'Apiculteur* was ended. But if its editor breathed a sigh of relief, it was a very short sigh.

Mr. Pelletan had just started a new farm magazine, the *Journal des Fermes*, and he welcomed the contributions of progressive beekeepers. Some of the small handful of mobilistes in France at once began to write, to present the case of movable frames without fear of interference from Hamet. Just before he got the letter from Hamet, Charles Dadant secured a copy of the new magazine, and he read in it an article by one of its contributors: "We applaud with all our power the beautiful plea of Charles Dadant. . . . Let Mr. Dadant take courage; we do not despair on this side of the Atlantic and he will not be alone in the struggle. . . ." It is easy to imagine with what joy Dadant welcomed this new magazine and his newly found friends in France.

He at once began to write for the *Journal des Fermes*, extolling the new system freely, with no more pestering footnotes to bother him. He no longer spared Hamet and his teachings in the least, but he used his pen relentlessly in exposing the littleness of the man and the backwardness of his teachings. He challenged Hamet to accept the responsibility which he owed the beekeeping craft, and to make a fair trial of the new things in his experimental apiary. And he published the letter which he had received from Hamet.

That destroyed any remaining trace of cordiality between the two men.

After that the editor of *L'Apiculteur* could not find epithets fully expressing his derision to fling at his adversary across the water—henceforth Charles Dadant was to be spoken of in that worthy magazine only as Barnum, when the editor bent to notice him at all. And the *Journal des Fermes* was merely an “ephemeral sheet” unworthy of the notice of Mr. Hamet.

The *Journal des Fermes*, unmindful of its insignificance in the eyes of that gentleman, continued to teach progressive beekeeping, and it was making some converts. It was gaining subscribers, while Hamet was apparently steadily losing them. Each one of the mobiliste writers for the *Journal des Fermes* was pushing some system, many of them the German system, but the American hives and system, due to the enthusiasm of their champion, were beginning to attract more attention than the others. Charles Dadant exulted in the victory that he was gaining for the future of beekeeping in France. He thought that the days of routine beekeeping were about over. “The books, the journal of Mr. Hamet are condemned by progress. Let us not bother the secretary general. The old system is at bay, the death rattle is in its throat; let us not trouble its agony and let the dead bury their dead.”

But victory was not so near as he thought. People do not readily change from practices centuries old. Hamet was too well entrenched, and it was the *Journal des Fermes* after all which went under, instead of *L'Apiculteur*. It did not pay financially, and Pelletan published it for only a few years, when it was merged with *La Culture*, an older farm magazine.

Charles Dadant wrote then for *La Culture* and for one or two other small publications, but for the next ten years the mobilistes were defended by no leading publication. Mr. Hamet, apparently victorious, continued to extol the straw hives until his death.

In 1879 Edward Bertrand began to publish the *Revue Internationale d'Apiculture* in French Switzerland. He asked for the contributions of Charles Dadant, who was only too willing to comply. It was a good magazine, and from that time on the new methods slowly but surely gained. The Quinby hives of Charles Dadant found favor with all who tried them. It happened that only ten years after Dadant was expelled from one beekeeping society he was made an honorary member of another, “The Romande Society of Apiculture.” The old system was indeed at bay. But the struggle was long.

## Deterioration of Honey Radiator Solutions

By Parker Lane

FOR the past three winters I have used honey solutions in my Chevrolet radiator with fairly satisfactory results. The first winter I used straight honey and water; the second, honey and water with a little alcohol; and last winter I used a solution made up of about three parts honey, two parts water and three parts alcohol by measure. This last solution gave satisfaction under my conditions. It never failed to circulate freely, and during the short drives about town, which make up practically all of my winter driving, evaporation and losses from overflow were slight. I would expect, however, that under conditions of hard driving, the results might not be so good.

It has been reported that honey solutions may be kept over and used again from winter to winter, but I believe a few words of caution are in order. The solution which I used last winter with so much satisfaction was kept through the summer in tightly closed friction-top honey pails. No indication of fermentation or other change was detected.

At the approach of cold weather an attempt was made to rejuvenate the solution by the addition of enough alcohol to restore the hydrometer reading to what it had been when first made up the fall before. I realized at the time that hydrometer readings could not be relied upon in a solution made up of more than two ingredients, but there was no other guide. In short, I did all that could be done to restore the solution to its original proportions. Some new solution was made up in exactly the same proportions as used the year before, and a little of this was added to the rejuvenated solution to make up the required amount.

The radiator was then filled and all went well until the temperature dropped to about ten below zero. No trouble was anticipated and, being in a hurry, no investigation was made; but, after driving half a mile, the solution was boiling vigorously. The solution had frozen and normal circulation was restored only after the car had stood for a while in a heated garage.

Examination of a sample bottle of the rejuvenated solution kept on the open porch revealed it to be frozen practically solid, while beside it stood a sample bottle of the original solution, a year old, but which had never been in a radiator. This sample was as liquid as could be desired.

In the absence of chemical analy-

ses of these samples, one can only guess at the cause of such results, but I have a strong suspicion that in the case of the rejuvenated solution, chemical changes had taken place which reduced its ability to withstand freezing. Had no alcohol been added to rejuvenate the solution, it probably would have been little better than plain water; and even with the addition of considerable alcohol, the solution lacked much of withstanding the low temperature expected of it.

The above experience is no proof that honey radiator solutions commonly deteriorate; and the matter probably would have been given little thought except for the fact that a similar situation was encountered by a friend during the same cold spell, under circumstances which were practically the same as those mentioned above. These facts are presented not only to sound a note of caution, but also in the hope that someone may be induced to make investigations along this line.

I have used honey radiator solutions long enough to know that they can be used with reasonable satisfaction by those who understand them and use them with due care. Naturally, I have been anxious to see the successful development of their use. But, in my opinion, it has been demonstrated conclusively, both by engineering experiment stations and by common observation, that they are not satisfactory for use by the average car owner.

### A Correction

I have yours dated June 7, covering letter from Mr. Maistre relative to my article on granulated honey.

I have replied direct to him, and he is quite right, as the words “higher specific gravity” should read “higher moisture content.” (Page 29, second column, January, 1927.)

Would you please draw attention to this error, that others interested in the question of granulated honey may not be misled?

You hardly did the subject justice when you stated you had received samples of granulated honey in paper bags from me. (Editorial, January, page 12.) If you remember, they were in no container of any sort, but simply a block of honey wrapped in parchment paper, and yet they carried through the tropics without insulation or any special packing, to arrive in good condition to you.

Fred C. Baines, Australia.



Established by Samuel Wagner in 1861

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## A Change of Management

L'Apiculteur, which we believe to be the oldest bee magazine, having been published in Paris consecutively for seventy-one years, has just changed its management for the third time in its entire existence. Its first publisher, Hamet, was the indefatigable supporter of the old systems of straw-skep beekeeping. Having tried some of the earliest movable frame hives, which were inconvenient and difficult to handle, he set his heart against all improvements, and until his death in 1889, his only idea of progress in beekeeping was the prevention of killing or brimstoning colonies of bees to secure their crop. He taught a class of beekeeping at the Luxembourg Gardens, near the Senate Chamber, but during his entire term of office, like the man who thought that the railroads were just a "fad" and would not last, he kept on asserting that no great crops of honey would ever be harvested with movable frame hives. He was really a hindrance to progress in beekeeping.

It was against this man's unprogressive ideas that Charles Dadant fought for years, in the Swiss, French and Italian bee magazines, and it was owing to this protracted fight for progress that the hives recommended by the senior Dadant were adopted generally on the European continent.

The second man in the management of L'Apiculteur was E. Sevalle, whose portrait was published in the American Bee Journal, on the front cover page, in July, 1923. About that time Mr. Perret-Maisonneuve, the bright scholar and practical beekeeper who wrote "L'Apiculture Intensive," was promoted to the position of Secretary-General of L'Apiculteur. But through some misunderstanding he became dissatisfied and resigned after a year of service. Now, Mr. Sevalle hands the position over to Mr. Th. Mamelle, a student of practical entomology and a bee master. We welcome Mr. Mamelle on the list of bee editors and wish him a long tenure of office.

An article concerning the teaching of beekeeping at the Luxembourg Gardens in Paris, with modern methods, will soon be published in our columns.

## Bees as Pollen Distributors

A short time ago I read in the "New Zealand Fruit Grower" an article with the above title by a professor in California. I found it very good and exactly in line with my experience and thought that it should be published in the American Bee Journal. But when I got to the end of the article I found that it was from "The American Bee Journal."

There are many instances when we forget what we have published. For that reason we keep files of every number. Those of our readers who will keep their old magazines and have them bound will be astonished, if they read them over after a while, to see how many things are forgotten after reading. Old files of any bee magazine are valuable. Save them.

## Uniting Bees

I do not believe much in uniting colonies, but there are times when it is necessary. If you have had a number of late swarms and have hived them separately, it is quite possible to be overstocked with weak colonies in fall. We rarely have swarms, almost never any secondary swarms. Whenever we have had them, we followed the method of the old skep beekeeper, Hamet, who advised to hive the second swarm in any kind of box and return it to the parent colony at the end of twenty-four to forty-eight hours. By that time the hive has quieted down and there is but one young queen left. If you kill the queen of the swarm that you return, you put an end to any trouble. But if you do not find her, when the swarm is returned, the two queens will fight; one of them will be victor and the colony, having gotten over its swarming fever, will continue life usually with a sufficient number of bees to gather plenty for winter. In this way we avoid the necessity of uniting any colonies.

When we have weak colonies in the fall, we do not believe in keeping them separately till spring. If we do, and find them alive and with fertile queens in spring, we will certainly not unite them then. Good queens are a valuable asset in spring and it is worth while to save every one. The time to unite our bees is in the fall, when we have two colonies undersized and short of the necessary amount of food.

There are different ways of uniting. The method of Dr. Miller, called "the newspaper plan," is probably as good as any. It consists, as most beekeepers know, in putting the weaker of two colonies over the stronger one, with only a newspaper between the two brood chambers. The bees cut away the paper and unite gradually. They do not fight, if they have sufficient stores to be comfortable. It is much the best to kill one of the two queens beforehand, as we can thus select the one that we prefer. She is usually in the stronger of the two colonies.

Sometimes we have found it quite easy to unite a weak colony to a stronger one, by lifting the combs on which the bees are clustered, on a cool evening, and setting them down inside of the other colony. The two hives have to be made ready beforehand, by removing the most undesirable combs, so as to have room to let the combs of the weaker colony fit down in the side of the stronger hive. If there are only three such combs, the beekeeper can lift them all together without disturbing the bees enough for any of them to take wing. I have done this quite often. If the two colonies have been fed slightly the day before, they will be in good temper and will fight very little, if at all.

In any case, it is best to examine the colonies a few days after the uniting, so as to arrange their combs in good order for winter. A colony, made of two that were scantily supplied for winter, is likely to have plenty and is much more likely to winter with the strength of the two swarms than singly.

The cool weather of October days, in our latitude, is the best for such unions, as the bees fly but little and the danger of robbing is almost nil.

Colonies that are weak, but that have been kept alive till spring, with a fertile queen, are too valuable, in my opinion, to be united. They may be given bees bought from the South, by the pound, or a little help from very strong colonies, or some queenless colony in the apiary may be united to such queenright colonies.

Thus, I believe in uniting bees, as a rule, only in fall.

## Only One Dollar Per Year

Beginning October 1, the subscription price of the American Bee Journal will be one dollar per year, or three years for \$2.50. Foreign postage 25 cents extra per year. No extra postage to Canada. All subscriptions recently received have been entered at the new rate.

The cost of paper and printing is still at near the war-time figures. Printing costs do not justify any reduction, but during recent months our advertising support has been very satisfactory. We are passing on to our readers the saving made possible by increased advertising.

It is our purpose to give our readers more for their money than ever before. The American Bee Journal is already the largest bee magazine published. It contains more reading matter and more advertising than any other publication devoted to beekeeping.

We look forward to a greatly increased circulation as a result of the change in price. The best advertising for us is to have our readers call the attention of their friends to our magazine. If you like it, tell your neighbors about it. The more readers we have, the better magazine we can give for the money you spend.

## Artificial Honey

The famous "scientific pleasantry" set afloat by a noted American chemist some fifty years ago, asserting that comb honey can be manufactured so as to resemble the product of the bee, "although bees have never had anything to do with its manufacture," has just been revived, we are informed by a beekeeper of Canada, who sends us a clipping from "La Presse" of Montreal, quoting "Le Journal D'Agriculture Pratique" of Paris, which, over the signature of a Mr. Bourlier, states that a house in Boston makes combs out of paraffine and fills them with glucose syrup and seals them with a hot iron, and that this so-called honey is sold in Europe under the name of clover honey!

So it becomes necessary to say again what has been repeated hundreds of times, that this is just what the French call a "canard" and that it has never been possible to manufacture comb honey, and that, even if it could be manufactured, the trick would be easy to recognize, since it would be impossible for manufacturers to imitate the infinite variety of shape of the sealing of the cells as the bees seal them, that manufactured combs would be as similar as cakes of soap, while no two combs filled by the bees are alike in appearance. A premium of a thousand dollars was offered by the Root people for a single comb built and filled and sealed artificially, and the offer, still standing, has never been accepted.

But, will the public ever disbelieve the numerous silly stories of reporters? I doubt it. The human race loves to be humbugged, and the bigger the fish story the more ready the folks are to believe it and repeat it. How much truth do we get out of the newspapers? Very little, if all they give us is as false as what they tell us about bees and their products.

## Corkins Suggests Program

C. L. Corkins, Secretary of the American Honey Producers' League, outlines a program which the beekeepers should support. He proposes that, since we know but little about some of the properties of honey, we should endeavor to interest the government in undertaking a serious study of our problems. He says: "The first project is to scientifically study the physical, chemical and therapeutic properties of honey."

When we have scientific proof that honey has all the qualities which the beekeepers now claim for it, we can expect an increase in consumer demand which will take care of our largest crops without difficulty.

This is a really sensible program and one which we believe the present administration will approve. It is in line with the policy of the government to assist farmers by making available information bearing upon their problems. We fully believe that a scientific study of honey would bring to light facts sufficient to convince the public of its value.

## Comb Foundation of Pure Versus Mixed Wax

A discussion is taking place in the "France Apicole" as to whether it is advisable to make foundation of mixed waxes in order to secure greater strength. Perret-Maisonnette and Caillas, both noted writers, advise the beekeepers to make their own foundation, using different proportions of pure beeswax and ceresine and other waxes. But they acknowledge that the combs built upon these mixtures can never be sold as pure beeswax and never have the qualities of beeswax.

On the other hand, Mr. Victor Dumas, under the title "A New Apiarian Danger," fights the ideas thus put forth, holding that "beeswax is a product of the bees, especially adapted for the purpose that it serves," and that it is wrong to adulterate it under the excuse of trying to improve it. He holds, moreover, that this practice of mixing other waxes with pure beeswax will do away entirely with the word "beeswax" and that it will be impossible to eliminate the other waxes after they are once established in the hives. This, he avers, will prevent us from selling our product as "pure beeswax" and will further endanger the sale of our products.

In isolated cases, it may be possible for a beekeeper to keep separate the combs built on impure wax, but as a rule the use of impure waxes in hives may become the death toll of sales of pure beeswax, except in cases of cappings kept separate from brood combs or combs built on foundation.

When we feed bees on syrups for winter or to make up for spring shortage, we know that these syrups will be used up before the crop comes. But when we put other waxes than beeswax in our combs, we know that the day will come when those combs will be rendered and will give us an adulterated product.

## Honey Selling Time

We can sell honey at any time. But there is a season when it is easier to sell than at any other time.

If you go to a grocer who understands his business fully and who keeps tab on the amount of goods he sells at each season, and you offer him honey in July, he will say: "It is too early for sweets; what we must have now is fruit, tomatoes and melons. The customer wants food that is refreshing, in hot weather."

But in October, when the weather turns cool, melons are disregarded and honey is in demand. So the best time to sell honey is during the cool and the cold weather. Any time between the first of October and the end of the holidays you will find more demand for honey, among people who like good honey, than at any other time.

Just as soon as the fall crop of honey is off the hives, be sure and interview your regular customers with your usual offers of nice honey. The coming holidays make it desirable for the housekeeper to have some delicacies to offer to her guests, and she may readily be induced to invest in the most desirable of all delicacies.

Another thing to bear in mind: The housekeeper is likely to be satisfied with a small purchase. She is used to buying things from day to day, in small quantities. She does not realize that the cost is much greater when goods are purchased in retail quantities. So, when we go to the consumer, it is advisable to insist on selling her a large amount, a sixty-pound can, if possible, by calling her attention to the much lower price per pound. This has two advantages: you get rid of a greater quantity of your product with but little more trouble than in the sale of a pound or two, and the housekeeper, on the other hand, feeling well supplied, does not hesitate to serve it on the table at each meal. Opportunity is the great point in honey consumption. Many people do not eat honey because the opportunity does not offer itself. They like it, but forget about it. A pound will last but a day or two in a family with children, and if you wish to keep them supplied you must come again and again. But if you can induce them to buy sixty pounds, you have succeeded in creating a demand to which the family will become accustomed and you are actually securing a channel for your product.

# Handling Extracted Honey

By Morley Pettit

A MAN with two small apiaries and whose product only amounts to a few thousand pounds appealed to the writer through the editor of this magazine for information. Instead of selling all his honey at once in bulk, he sells through the year in small amounts. Since his output is distributed through the year, he wants information for the care of the crop so as to require the least possible labor in handling and at the same time retain the quality. His trade requires liquid honey.

What I often say is that when honey has been extracted and allowed to take its natural course by crystallizing it has merely completed the ripening process, and if there is any virtue in natural food it is then in its most healthful form. It may be compared with fruit which the grower picks and sells to the consumer just as it comes from the vines, bushes or trees. The housewife may then liquefy the honey or cook the fruit or prepare either for the table as she sees fit, but to allow the consuming public to believe that honey has spoiled when it completes its ripening process by granulating is just as false and almost as unfortunate as it would be for people to believe that apples are unfit for food except when served as applesauce. Since this unfortunate belief is so common in the United States, it is a matter to be urged upon everyone interested in bees that they should miss no opportunity of correcting such a false conception about our product. I want to bring this most strongly to the attention of the southern readers of this journal. Where the best varieties of honey do not granulate, as in the southeastern states, it is a temptation to let the idea pass and sacrifice the kinds that do granulate, rather than attempt to teach the public the difference. I have seen some of the largest producers there sell at half price any honey that "sugared," as they call it, although liquefying and bottling would have made it bring almost as much money as the other. This seems to me like more than just losing the difference in price; it fixes the misconception that the crystallizing of honey is almost like the decaying of fruit. It is building up a reserve of trouble for the future of the honey industry, and Heaven knows that is not necessary.

So I would advise your correspondent to figure out at extracting time how much honey he can sell during the year in the granulated form, in the different styles of packages. Then I would fill these right from the storage tank and set them away in

a dry, cool place. Fill rather more than were sold last year of each kind and by increased effort endeavor to dispose of them all before the new crop comes again. If there is any difference in quality of the crop, particularly with reference to specific gravity, put the best into retail packages which are to be sold in the natural form. I say the best because storing for several months in granulated form is the best test of quality, for honey which is not very well ripened will break down in time and separate, allowing liquid to rise to the top and solid to settle to the bottom of the container. When this happens, a thorough heating will drive off the gases of incipient fermentation and restore the honey to a condition which is first class for bottling; but one does not want to have this to do with small packages, nor should the breaking down occur while the honey is in the hands of the consumer.

In a trade direct from producer to consumer, especially when the former is in personal contact with his customers throughout the year, it would be interesting and probably valuable to try out the stunt packages, such as granulated honey in waxed paper bags, or in bricks cut with a wire and wrapped and put up in attractive cartons. If the beekeepers made sure of supplying first-class honey, and the families would stick to it long enough to consume one or two pounds for each member, I will venture to say most of them would come back for more.

Now to come back to the question. I think there is no doubt that the best way to store honey which is to be sold liquid in bottles is in sixty-pound tins. These should be sealed by screwing the caps down tight and stored in a dry place. Then the daily or weekly supply can be liquefied, strained while hot and filled into the selling packages. I am not an expert on all the processes of bottling, because all of the honey we have produced for ten years has gone out to consumers granulated, in retail packages, with the exception of the cheaper grades, and even a great deal of those have gone to special trade in the same form. While it is possible to liquefy honey in the bottles or small pails, it messes up the package and is not nearly so satisfactory as to have it in bulk containers and melt and fill it just as needed. Some producers supplying a retail trade make a practice of calling around every two weeks or so to keep the stock fresh. If any shows signs of granulation it is taken away and replaced by fresh stock,

the idea being that, while a granulated trade is desirable, honey that has once been heated must never be allowed to go again, as it will not be even and, besides having a bad appearance, will give a wrong impression.

In liquefying honey, it must be borne in mind that it takes considerable time to remove every granule. The small producer will probably use an oil or gas stove with tin container for the honey cans and surrounding water. One holding six honey tins is a convenient size. A wooden crate is laid in the bottom and the full cans on this. Water is poured in around the cans and the fire started underneath. Where wood is very cheap, it will be used, but it takes a lot more attention to keep a regular fire, and the slow heat should be applied for about twelve hours, with frequent stirring of the honey to clear out all granules. At no time should the water be too hot to bear the hand. In regular bottling plants I understand they raise the temperature to 160 for two minutes just at the last. This, Dr. Goss claims, destroys from 25 to 40 per cent of its food value and is a regrettable procedure, but what can we do so long as the public demands that we reduce our honey to a sort of syrup before they will buy it?

In developing a market by direct sales to retailers and consumers the producer should select a name for his product, advertise that name and guard it like every good name should be defended. The people who make lithographed pails will make your special brand design for a slight extra charge, provided you give a sufficiently large order. That is the very best arrangement, but is beyond the reach of smaller producers. The next best is a tasty, clean-looking label which covers the can completely. The best way to decide on colors and design is to visit high class grocery stores and make a study of package goods on the shelves.

## Marketing Committee

The Nebraska Honey Producers' Association has appointed a committee of five, consisting of H. A. Mark, Oskosh, F. M. Parsons, Omaha, Wayland S. Case, Gordon, E. Lindbled, North Platte, and H. W. Siskels, Scottsbluff, to prepare a plan of marketing to be submitted to the annual convention in January. The members of the committee will be grateful for information, suggestions and advice from other marketing organizations.

# Questions About Sterilizing Combs

Answered by Henry C. Dadant

**WHAT** success have you had in treating combs infected with American foulbrood, brood combs, extracting combs, water solution, alcohol solution, Hutzelman's solution?

In transferring bees to clean hives, do you shake and brush the bees off the combs, or do you transfer them by smoking them out of the infected hive? What time of day is best to do this?

Do you use the double transfer method?

Do you cage the queen?

Do you have any trouble with the queen leaving if you do not confine her to the new hive?

What is the proportion you use in mixing the water formalin solution? In alcohol formalin solution will it be necessary to dry the combs before giving them back to the bees?

South Dakota.

The water-soap-formalin solution is a success as recommended by Professor George R. Vansell of California, same having been described in the May, 1926, American Bee Journal. There is also a bulletin on the subject by him which you should get. If you do not have that Bee Journal or bulletin, let us know and we can get it for you.

Success in sterilizing combs depends a great deal on the one doing it. If you are very desirous of saving every good comb possible and are very careful and particular in doing such work, you will succeed and it will likely pay you to save combs. However, you will have a greater percentage of recurrence of disease when trying to sterilize brood combs with the water-soap-formalin solution than with the Hutzelman solution. The reason for this is that it is more difficult to have every cell filled with the water-soap solution. Every cap of brood must be penetrated and every cell of honey must be opened. Also every cell must be filled with the solution.

Personally, we no longer sterilize brood combs, mainly because we have very few of them diseased and it is difficult to get competent help. Where an apiary has had quite a little American foulbrood right along each year, you will find it will pay you to sterilize your extracting combs all at one time, as this will help much in preventing further spread of disease when your supers are put on again the next year.

No doubt the Hutzelman solution is the very best for the purpose all around, as it penetrates and fills the cells better. However, the directions for using it must also be followed

carefully. There need be very little risk of reinfection from combs sterilized by either process, provided one exercises great care in the whole process.

Our local state inspector has not found it at all advisable to recommend to the small beekeeper that he disinfect his combs for disease. Many of them do not understand beekeeping well and will allow their combs to lie around and be in reach of robber bees before they get them sterilized, and the burning method is usually found by far the safest in such cases.

The double transfer is the safest, as you may get a recurrence of disease of about 5 or 10 per cent if you shake directly on foundation. There is frequently much trouble with bees leaving or abandoning after the first or second shaking, so it is usually advisable to cage the queen and allow the bees to release her themselves after the second shaking. This procedure, however, will not always result in the shaken colonies building up rapidly again. Caging a queen in the midst of heavy egg laying is probably hard on her, and many colonies need requeening not long after.

Shaking should be done late in the evening, and if some diseased colonies are located close to the healthy ones, the entrance of the latter should be shielded or covered with large boards.

The better plan yet is to remove all diseased colonies to another location several days previous and at quite a distance, a half mile or more, and then shake them all at one time. If this is done, the shaking can be done most any time of the day, but preferably at sundown. We prefer to use very little smoke, as the bees should not be induced to fill themselves with honey. If there is much fresh nectar, the combs should not be shaken much and the bees should preferably be brushed off.

If alcohol formalin solution is used, it should be the Dr. J. C. Hutzelman mixture, as he has patented this and done a great deal of work in offering the beekeepers his methods. His prices are not high on this solution, considering all the information and good solution he furnishes.

The water-soap-formalin solution is made according to directions in the Bee Journal named above. It is especially good for extracting combs and must be used according to directions. It is also good for brood combs, but you will find it more difficult to make sure every sealed brood cell is opened and filled

with solution than when using Hutzelman's solution. After treatment, combs should be extracted to remove all solution, then washed in pure water and dried, as bees are rather slow to make use of wet combs with formalin odor.

Do not fail in any case to follow directions very carefully as given by Hutzelman or Vansell, and be very careful during the removal and handling of combs to be sterilized, in keeping them entirely away from bees.

## From England

Today is the last day of June. It marks the end of the worst month of June I can remember. Some time ago you related the tale of the Englishman who said that our summer in the year in question had occurred upon a Wednesday. This year it has been on a Thursday.

We had, after an exceedingly wet March and April, a week of wonderfully hot and fine weather at the beginning of May, when beekeepers in fruit locations probably obtained honey. Since then we have had only three or four days of fair honeyflow and one (June 16) magnificent day. But what is one day among so many bad ones? Since clover bloomed, our weather has consisted of cold winds, rain, and frosty nights.

I find recorded in a rough diary of the weather since June 1, nine nights on which there was a ground frost, sixteen days on which no honey at all was gathered, seven days on which there was a slight flow, three days of good flow, three days of heavy flow, and one day exceptionally heavy flow.

But we hope that July may be a contrast to June and that we may yet harvest a crop of honey. The whole country is a carpet of white clover and alsike, and could we get fourteen days of hot, fine weather, a good result may yet be obtained.

R. B. Manley.

## Bees To Toast Lindbergh

While getting ready for the State Fair, Mrs. A. Coppin asked her grandson, Charles Ong, of Campaign, what she should ask the bees to do for the fair. Charles said "Lucky Lindy" would be up-to-date, and the bees were so instructed. They do not know what the bees said about it, as they do not understand the bee language, but it is evident the insects approved the suggestion, as they went right to work and printed the letters "Lucky Lindy," with honey. They hope Mr. Lindbergh won't be offended by the bees or their instructors, as they don't know of anything sweeter than his name could be printed with than Illinois white clover honey.—Wenona, Ill., Index.

# Some Autumn Honey Plants

By Frank C. Pellett

OVER the greater part of America the fall crop of honey is a mixture from many sources. Outside of the buckwheat and sweet clover regions there is no great amount of honey produced from a single unmixed source at this season.

While there is a great variation in the quality of the fall honey gathered in different neighborhoods, in the main it is of amber or dark color and rather strong flavor. There are hundreds of different plants which contribute something to the late honey harvest. Of these a few are widely distributed and well known. In some localities surplus is gathered in sufficient quantity to become known in local markets.

## Aster

The asters are a very large group and some species is to be found in almost every part of the United States and Canada. They are especially common in the southeastern states. Such names as tanglefoot,

frost flower and Michaelmas daisy are applied to members of this group in addition to dozens of distinguishing terms, such as seaside aster, prairie aster, etc.

Some species yield nectar much more freely than others, but it is probable that the honeyflow from all is much affected by climatic conditions. I have been able to find but few reports of honey from aster from the West and Southwest, although many species are common to the region. The largest yields of honey seem to be harvested in the region from Missouri to Kentucky and nearby areas. In most places the honey is mixed with that from goldenrod and other fall-blooming plants.

There is much conflict in the reports concerning the quality of aster honey. It is generally regarded as of poor quality, yet C. P. Dadant states that on one occasion he secured six barrels of almost pure



The goldenrods are of most importance to the beekeepers of the New England States and of eastern Canada

aster honey. This was very light in color and of fine quality.

Numerous observers have mentioned the rank odor which is very noticeable in the vicinity of the hives when the bees are working on asters. This soon disappears as the honey ripens, but some writers insist that the taste is always strong.

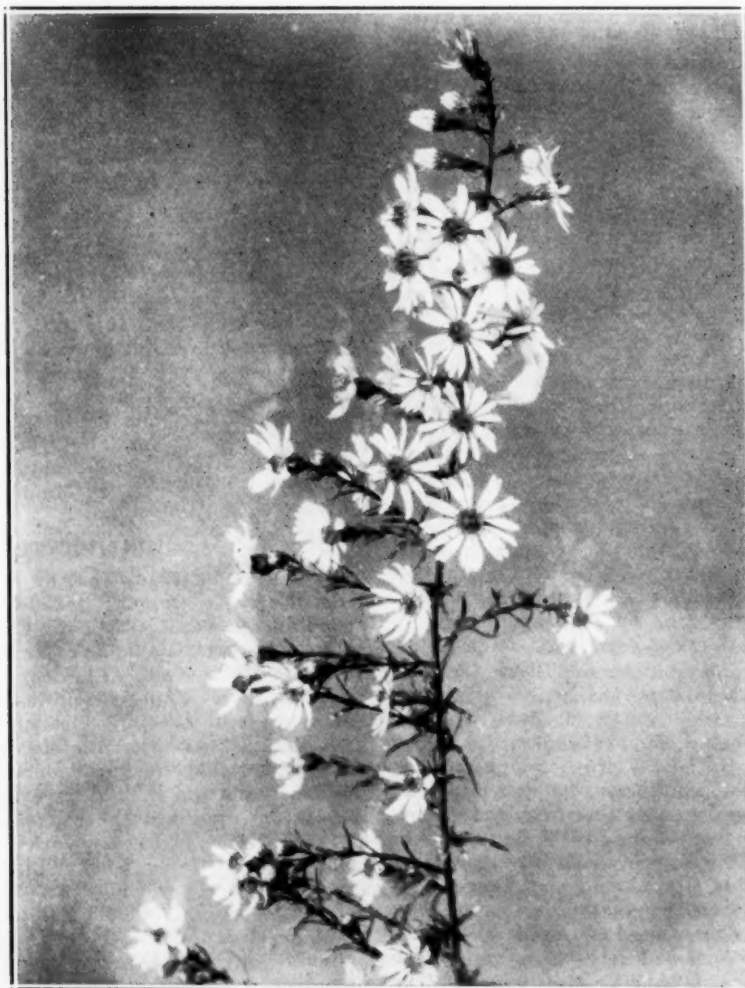
Pages have been written on the danger of aster stores for winter. This is probably due to several causes. Not only do the aster honeys contain gums which are indigestible to the bees, but the honey is gathered so late in the fall that it may not always be ripened properly. It also granulates quickly, and granulated honey is unsafe for stores in localities where the bees do not have frequent flights.

The species shown in the picture is *Aster ericoides*, a small-flowered variety commonly known as frost flower. It blooms very late and is much sought by the bees.

## Goldenrod

From my personal observation of the goldenrods in the Mississippi Valley, I would not rate them very high as sources of honey. However, there is ample evidence that in some localities they are of great value and do in fact yield surplus honey in liberal quantity.

There are nearly eighty species of *Solidago* in North America, and some species are able to find a suitable environment in almost any part of the continent. Although goldenrods of several species are common in



The small flowered aster, commonly called "frost flower," blooms very late and is much sought by the bees

Iowa and Illinois, I have never observed the bees working on them to any extent. At my farm in northern Nebraska, however, the bees do get considerable late honey from golden-



The bees visit the white snakeroot, but seem to get but little honey from it

rods on the prairies. The altitude there is several hundred feet higher than the points where observations have been made in the other states mentioned. *Solidago nemoralis* is the species from which most of the Nebraska honey seems to be gathered.

It is from New England, however, that we hear the most of goldenrod honey. There much dependence is placed on this group of plants for surplus. Eastern Canada beekeepers also report much honey from goldenrod. In the wet lands of New Brunswick and Nova Scotia large acreage of goldenrods mixed with other fall flowers are found. There yields of fifty or more pounds of surplus per colony are not uncommon. Many reports indicate that it is usually mixed with honey from asters, which have a similar blooming period.

There are reports of surplus honey from goldenrod in Texas and California, as well as some other western localities. It is of primary importance, however, only in the east.

Reports indicate a great variation in the color and quality of the honey. The difficulty of securing unmixed samples may account in part for these differences. Usually it would seem goldenrod honey is of a rich golden color, although reports of honey, from this source, which is very light and also some which is very dark are at hand. The variation due to differences in species from which the honey is gathered, as well as climatic and soil conditions, would account for a great variation.

#### Wild Sunflower

The wild sunflowers (*Helianthus*) are another widely distributed group. They are late summer bloomers and of great importance to the bees under some conditions. The cultivated sunflower appears to be of very little value to the bees except for pollen. This variety has run wild over large areas in the plains region.

Large numbers of insects of many species are to be seen on the bright yellow flowers of the wild sunflowers whenever they are in bloom. The largest yield of honey secured from wild sunflowers that has come to my attention is that of M. H. Mendleson, of Ventura, California, who secured a carload of honey from this source on one occasion. Such yields, however, are rarely reported.

The Jerusalem artichoke is one of the most attractive species to the bees in the Mississippi Valley. It is a persistent weed in fence rows, waste places, and even in grain fields.

#### Heartsease

The plant known to most beekeepers as "heartsease" is *Polygonum persicaria*, or lady's thumb. It belongs to the buckwheat family and is a widely distributed weed, intro-

duced from Europe. It is extremely common in damp places and comes up in great numbers in cultivated fields in wet seasons.

The blooming period is long, and large yields of honey are common. In the Middle West, where corn is the principal field crop, it is not uncommon for the bees to get 100 or more pounds of honey per colony in a very wet season. At such times the heartsease fairly covers the cornfields after cultivation has ceased. In dry years, but little heartsease honey is likely to be secured on uplands. It is dependable only on lowlands.

The honey is of a dark amber color and strong flavor. It is well received in some markets, while in others it is hard to sell.

#### Eupatorium

This is another group with representatives common east and west and north and south. Such names as boneset, thoroughwort, Joe-Pye weed and white snakeroot are applied to the various species of Eupatorium.

Two species are shown in the illustrations herewith. The white snake-root is common to the woodlands of the middle western states. It is attractive to the bees, which work it freely, but I have never been able



Wild sunflowers are widely distributed plants and yield much honey under favorable conditions. Some species yield only pollen



Heartsease is abundant in cultivated fields in wet seasons and is the source of large yields of amber honey of a strong flavor

to see that they get much honey as a result of their efforts.

On the other hand, the thoroughwort, also shown, appears to be an important source of nectar in Illinois and nearby states. All this group of plants are fall bloomers and the honey is mixed with that of the others already mentioned, as well as many others of the season. The honey is rather strong in flavor and amber in color, commonly classed with that from heartsease, Spanish needle, etc.

It has been estimated that there are more than twenty species of this group of plants, of importance to the beekeepers of America. Considering the wide area in which they are found, the number of species yielding nectar, and the great diversity of conditions under which they flower, the group is of more importance than is generally recognized.

### Sweet Clover Crop Short

This has been a very peculiar year. Throughout South Dakota the prospects of a big honey crop were never better than this spring, but as spring advanced the weather remained cold, with very little sunshine, for weeks at a time. This made it very difficult to have bees built up to the required strength for the honeyflow. When the yellow sweet clover came into bloom we thought our troubles were over, but, for the first time in years, this plant failed to produce a surplus, so in a great many cases feeding was necessary as late as June 20.

The white sweet clover was very

late, but, as usual, the bees stored very rapidly when conditions were right, and at the present time (August 20) the flow is unusually good for this late in the season. With the best of weather from now on, we will still be a good many pounds short of our usual average. Yet newspapers in different parts of the state declare this to be a wonderful honey year and a 200-pound average in sight. These stories are evidently



The late flowering thoroughwort is a valuable source of honey in the Mississippi Valley

given out by parties who are uninformed, and this average is about 120 pounds too high.

Andrew McBride,  
Hawarden, Iowa.

### Honey—Jelly—Champions

J. B. Dillon

The first week in August, Denver, Colorado, found the champion jelly makers of the West visitors to the mile-high city, guests of the Great Western Sugar Company. Each of the ladies brought with her some of the jelly that she had made, the jelly that placed her as the champion jelly maker in her section of the West. The ladies came from Missouri, Minnesota, Nebraska, South Dakota, North Dakota, Oklahoma, and Iowa. Mrs. O. J. Soma, of Newell, S. D., told of the joy she gets when she sees the folks smack their lips over the jelly she makes. Good jelly will make your husband stick. Mrs. Soma received a \$100 check from the Great Western for her skill.

Mrs. E. H. Dinsmore, of Kansas City, the grand champion, received a check for \$500 and said that she would rather be champion jelly maker than a channel swimmer.

An elderly lady remarked:

"Well, I guess jelly is all right to them that likes it, but give me honey, real honest to goodness honey," and she smacked her lips as though she meant it.

Of course everybody laughed, as did the speaker, and some of the champions admitted that they were very fond of honey.

# How Bees Concentrate Nectar

By Dr. O. W. Park, Ames, Iowa.

(Reprint from Report of State Apiarist, Iowa, 1926)

**N**ECTAR of flowers becomes honey only after it has been gathered by bees and has undergone certain chemical and physical changes for which the bees are responsible. When these changes have been completed the honey is said to be ripe. An important part of the ripening process is the elimination of a large part of the water content of nectar.

The two theories that have been offered in explanation of how the honeybee reduces the high water content of nectar to the low water content of honey are known as the excretion and the evaporation theories. The first of these is based largely upon the well known observation that bees carrying thin nectar or thin syrup often eject a tiny spray of colorless liquid. As early as 1878, Rauschenfels and others assumed that this was the result of a process within the body of the bee whereby some of the excess water was eliminated from the nectar while the bee was enroute to the hive.

De Planta, at about the same time, arrived at a similar conclusion from the results he obtained from the analysis of nectar, new honey and old honey, in which he found that honey newly deposited in the cells reached them already considerably concentrated.

Thompson and A. I. Root collected and tasted some of this spray. Both reported it to be tasteless, and as far as they could tell was only water.

## The Excretion Theory

Brunnich has developed an interesting theory in which he states that the membranous wall of the honey sac allows water to pass through it into the blood of the bee, from whence it is removed by the rectal glands and discharged by them into the rectum.

If the excretion theory is valid, an analysis of the nectar taken from the honey sac of a bee entering the hive with its load should show a greater concentration of sugar than would nectar taken directly from the plants from which the bee obtained its load. A number of analyses of this character were made during the past summer on nectar from two different sources. Analyses were run in duplicate in practically all cases in order to guard against errors.

The first plant used was the common milkweed (*asclepias syriaca*). Analyses were made of eight samples of nectar taken directly from the flowers and seven from the honey sac contents of milkweed nectar-carriers caught as they were entering the hive. These analyses showed

decisively that the nectar taken from the honey sac of the returning field bee was not more concentrated than that taken directly from the flowers. As a matter of fact, the average found for the concentration of sugar in the nectar taken from the bees was eight per cent lower than the nectar taken directly from the flowers. This decrease in concentration appeared as a rather constant factor, and in only one case did the honey sac contents show a higher concentration than the average for nectar from the flowers themselves. One such exception is not more than should be expected in an experiment of this nature, in which the bees caught at the hive may have secured their loads from a group of milkweed plants other than that from which the nectar was gathered by the experimenter.

The second source of nectar used in these experiments was the gladiolus (*Gladiolus* sp.). This plant yielded nectar in quantities that could be collected and fed to the bees, thus eliminating the factor suggested in the preceding paragraph as a possible source of error. Field-going bees were used. Each bee was marked, placed in a queen-nursery cage, and kept there without food for an hour. A single large drop of nectar was then placed on the screen of each cage. Only those bees which took up a large drop were used further, thus insuring that every bee used had a full load of nectar provided for it, and that it had none from other sources. These bees were then released at a distance of one-half mile from the hive and were captured when they returned to the hive. The nectar was then recovered after having remained within their honey sacs for approximately one hour. Analyses were run on the nectar recovered from the bees, as well as upon a sample of the nectar as it was obtained from the flowers.

The following day the experiment was repeated, only in this case a harmless coloring material was added to the nectar before it was fed to the bees, so that not only were the bees marked but the nectar itself was marked also. Hence it would have been impossible for one of those bees to get rid of the load it was given and acquire another from a different source before returning to the hive, without being detected. The nectar was analyzed both before and after the coloring was added, and again after it was recovered from the bees. The results of this experiment were almost iden-

tical with those obtained the previous day, when uncolored nectar was used. In both of these cases the concentration of sugar was about one per cent less in the nectar taken from the bees than it was before being fed to them.

Several questions arise. Why was the decrease in concentration so much greater in the case of milkweed nectar than in the case of gladiolus nectar? As suggested above, the bees caught at the hive might have been working on a group of plants other than that from which the experimenter collected his sample. It is possible also that some few of the bees used may have carried loads from plants other than milkweed, although every one of the bees used, bore the pollinia of the milkweed clipped onto her feet and legs. The writer's earlier researches on the habits of field bees indicated that a bee seldom changed from one kind of flower to another in her gathering until her particular kind was no longer available. It is unlikely, then, that this factor would enter in until towards the end of the blooming period, but the analyses showed marked uniformity throughout the whole period.

Another possible cause of this difference in results from the two different sources is the fact that in the case of the gladiolus the nectar was quickly obtained by the operator in considerable quantities, whereas in the case of the milkweed the process of collecting a sample from the flowers was very much slower, and smaller quantities were obtained, so that there was greater aeration of the milkweed nectar. A loss of water by evaporation would tend to increase the concentration of the nectar. This factor probably is responsible for some part of the apparent difference, but that it could account for all of it seems to the writer improbable.

But the explanation which to the author seems most plausible is that the milkweed nectar was twice as rich in sugar as was that from the gladiolus. So in order to bring about proper conditions for rapid inversion of the sugar, it was necessary for the bees to add a greater quantity of the enzyme to the more concentrated solution, thereby reducing its concentration to a greater extent than was necessary in the case of the more dilute nectar from gladiolus. It is well known in regard to the inversion process that the more concentrated the solution, the slower the action.

Are we, then, to conclude that a dilution instead of a concentration

process goes on in the honey sac between the flower and the hive entrance? The data at hand are not considered sufficient to warrant such a conclusion. They are ample, however, to show that no concentration occurs between the flower and the hive. Moreover, they certainly suggest that some dilution may occur.

What, then, is the source of the droplets of clear liquid ejected by bees when carrying thin nectar or syrup? As yet no direct experiment has been carried out to determine this point, but methods have been worked out by means of which it is hoped the answer may be secured during the coming season.

#### Concentration by Evaporation

If we consider the excretion theory disproven, the only remaining explanation that has been offered as to how bees concentrate nectar is that of evaporation. Does this method adequately account for the actual rate of concentration? Brunnich believes it does not, and cites the work of Huillon as well as some experiments of his own. During a good honeyflow, Huillon took away all the combs from three colonies one evening, and the following morning gave them empty combs. From colony 1, he removed these combs in the evening of the same day. From colony 2, the combs were removed the next morning. Colony 3 was placed in the cellar on the evening of the first day and was left there three days, after which the combs were removed. After being extracted, the specific gravity of the three samples thus obtained was found to be: 1.394, 1.415 and 1.432 for colonies 1, 2 and 3, respectively. These densities, according to Brunnich, correspond respectively to 26, 22 and 17 per cent water. Brunnich concludes that, since ripe honey often contains as much as 20 per cent water, these results would indicate that the samples from colonies 2 and 3 were both practically ripe so far as water reduction was concerned, and that the sample from colony 1 had been reduced in water content to a much greater extent than could be accounted for by evaporation from the nectar while stored in the cells. According to my figures, the densities given above correspond respectively to 23, 20 and 17 per cent water, instead of 26, 22 and 17. Thus it will be seen that even the sample from colony 1, which was taken on the evening of the first day, had reached practically the concentration of ripe honey. Is all of this concentration to be accounted for by evaporation during the course of ten or twelve hours? Probably not.

Apparently it was assumed that these samples were composed entirely of nectar gathered during that one

day. It is extremely improbable that such was the case. More or less honey was undoubtedly present in the honey sacs of the bees when the combs were taken away, the amount depending upon the degree of disturbance incident to the removal of the combs. Even with no disturbance, which is impossible, there must have been several thousand nurse bees elaborating food for the brood, and on that account well supplied with honey. It appears unlikely, therefore, that such a colony, suddenly deprived of its brood, would consume during one night anywhere near all the honey carried over in the honey sacs. Then, when given only empty combs (no brood), and with fresh nectar coming in, the nectar and the unused ripe honey would undoubtedly be deposited in the combs together; and who can tell in what proportions? Obviously, Huillon's experiment was of such an indefinite character that his results can throw but little, if any, light on the question as to the method or methods employed by bees in concentrating nectar.

In a somewhat similar experiment, Brunnich determined the density of the "fresh honey" of two combs taken from different hives, and after protecting them with wire-cloth so that no bee could touch them, he hung them in a strong colony, where they were left during a period of eleven days of fine weather. During this period their respective densities changed from 1.342 to 1.360 and from 1.288 to 1.340. The former then advanced in concentration of sugar from 69 to 72 per cent, and the latter from 60 to 68 per cent. In both cases the so-called "fresh honey" was quite concentrated when the experiment was begun, and therefore would lose moisture only slowly by evaporation from the cells. Moreover, the humidity may have been high during the period. Such an experiment is no proof that rapid concentration of nectar cannot be accounted for by evaporation. Had the experimenter used combs containing fresh nectar only, he would have obtained vastly different results.

From the mathematical calculations which he presents in an attempt to show that evaporation alone could not account for the observed rate of concentration of nectar during a heavy honeyflow, Brunnich appears to be unaware of certain details of the handling of nectar by the house bees. He assumes that when nectar is being carried around by a house bee it is being concentrated by the so-called excretion process. But, with proper facilities, any close observer can see that such a bee is constantly manipulating its load in a manner which provides

most favorable conditions for rapid evaporation. Thus the concentration which he here attributes to the process of excretion alone is shown to be due, at least in part and perhaps altogether, to a phase of evaporation.

In his final experiment, Brunnich fed a 43 per cent sugar solution to two colonies shaken onto empty combs in late fall when no nectar was available in the field. For the first colony, the syrup was colored red with eosin; for the second, a known percentage of sodium hyposulfite was added. The feeding was continued for a week, at the end of which time a sample was taken from the combs of each hive. The density was then found to be 1.340 for the first and 1.370 for the second. This indicates that the concentration had been raised from 43 per cent to 68 and 73 per cent, respectively. They had been reduced in volume to almost one-half of the original. By comparing the sample with the original, he found that the color intensity had not increased at all; and by chemical analysis he found that the hyposulfite had increased only 9 per cent.

Brunnich's reasoning was that, had the increase in concentration been due to evaporation, the thickened food should have been about twice as deep in color as the original, in the first case; and that in the second case it should have contained about twice as great a percentage of hyposulfite as did the original syrup. That seems logical. But on the other hand, assuming for the moment that water was removed by some physiological process, why should it be expected that either the coloring matter or the chemical substance would be eliminated with the water any more than that it would remain with the sugar? It was not shown that any coloring matter or any hyposulfite was excreted by the bees. It was merely assumed that such was the case. Further and more conclusive experiments will need to be performed before the excretion theory can be accepted.

It remains to be shown whether evaporation can and does proceed at a rate sufficient to account for the observed facts. Evaporation of nectar is known to have two phases: evaporation from the tongue of the house bee and from the cells of the comb. The first mentioned phase has been discussed by the writer in previous articles, so it will be necessary only to remind the reader that during the manipulation of the nectar by the mouth parts of the house bee, a most excellent opportunity for rapid evaporation is provided. It is not known whether the nectar is handled in this manner more than once; but if it is, this

would account for a very rapid rate of evaporation. While the extent to which nectar is concentrated by this means is not yet definitely known, there are reasons to believe that it may be the most important single factor in the concentration process.

Evaporation from the cells of the comb also presents two phases: evaporation from hanging drops of thin nectar, and evaporation from the new honey after being placed in the cell in the usual manner. Here again the writer has already shown, in the articles referred to in the preceding paragraph, that when nectar is being brought in more rapidly than it can be taken care of in the usual way the house bee does not stop to manipulate each load as received, but "hangs it up to dry." A tiny droplet is hung in the roof of each of several empty or partly empty cells, which frequently are occupied by eggs or young brood. These small hanging drops present relatively large surfaces from which moisture can escape rapidly. Later the droplets are collected, and it is assumed they are then put through the usual process of manipulation by the mouth parts. This phase of evaporation must be of considerable importance at times of heavy yields, especially when the nectar is very thin.

#### Evaporation from the Cells

So far we have been dealing with phases of evaporation, the importance of which seems apparent, but a measure of their importance is not readily established. It was found feasible, however, to obtain valuable data on the rate of evaporation from nectar located in its usual position in the cells. The experiment follows:

Glass cells, having the same diameter and depth as worker cells, were prepared. A frame was made having sockets to receive and hold them in the position of the cells in a comb. The cells were thoroughly cleaned, dried in the oven, and carefully weighed on chemical balances. Nectar freshly collected from gladiolus was placed in the cells and the amounts accurately determined by weighing. The cells were then fitted into their sockets and the whole frame was enclosed in a wire screen cage which allowed the entire apparatus to be hung in a normal colony next to a frame of brood. No bee could reach these cells, but the warmth of the hive and the currents of air were free to play their parts.

It was expected that the amount of nectar in the cell would influence the rate of evaporation, so three sets of cells were used; one set had only one drop at the back of each cell, the second set was filled about one-fourth full, and the third nearly three-fourths full. At the end of

twenty-four hours, some of the cells of each set were removed and their loss in weight and their sugar content determined. Whenever analyses showed less sugar than had been found in the nectar when first gathered, it was considered that fermentation had set in and the results were treated accordingly. But so long as no sugar was lost, the losses in weight were considered to be due to evaporation alone. At the end of the second day another lot of cells was removed and treated in a like manner, and so on for a period of seven days.

For the sake of simplicity, let us discuss the results of this experiment in terms of concentration, keeping in mind the fact that ripe honey has a concentration of about 80 per cent. For convenience, let A, B and C represent the three groups of cells, group A having the least and C the most nectar. The results for groups A and B were so nearly identical that the figures for group B only will be mentioned. The nectar when first collected contained 13.5 per cent sugar. Briefly stated, the concentration for group B actually rose to 79.5 per cent, or that of ripe honey, during the first twenty-four hours. During the next six days there was comparatively little change.

The results for group C must be qualified, because fermentation set in before the end of the first day. The amount of sugar lost in this way was so slight, however, that considerable light was thrown on the rate of concentration in cells nearly filled with thin nectar. If we assume, in this case, that all loss in weight was due to evaporation, then the nectar in the cells of group C advanced in concentration to 30 per cent the first day. That is, it only a little more than doubled its original concentration, whereas the nectar in groups A and B increased its concentration six-fold in the same length of time. Had there been no fermentation, the actual rate of concentration for group C would have been a little lower than indicated above. Hence the expectation was borne out that, within certain limits, the larger the amount in a cell the more slowly evaporation takes place. (A large amount of available comb space must greatly facilitate the concentration of nectar.) After the first day, fermentation progressed so rapidly in group C that further results were not usable.

Other experiments along this line were performed, but space does not permit a description of them here. Without exception, they all showed a very marked loss by evaporation during the first day, often a moderate loss the second day, and sometimes a small loss the third and

fourth days. The rate of loss was found to depend principally upon three factors: the relative humidity of the atmosphere, the amount of nectar in the cell, and the initial concentration of the nectar. The higher the initial concentration, the more slowly did it lose water.

The results of further experiments are needed before drawing ironclad conclusions, and further work along these lines is contemplated. The present paper is offered only as a preliminary report, but it is believed the experiments related above are sufficient to show, beyond any reasonable doubt, that evaporation from nectar in the cells can account for a very large part of the concentration process. It is the author's belief, however, that the evaporation which takes place from the mouth parts of the house bee may be of equal importance, and that evaporation in its several phases can fully account for the observed rate of nectar concentration.

### Nebraska Loses a Veteran Beekeeper

At 5:30 Monday evening, August 7, 1927, J. P. Goodwin, residing at 301 West Fifteenth street, South Sioux City, Nebraska, completed his life's work and was laid to rest in Graceland cemetery at Sioux City, Iowa, Thursday afternoon. The funeral was largely attended.

Mr. Goodwin was born in Illinois, February 18, 1863. In the fall of 1881 he came with his parents to Woodbury county, Iowa, where they lived on a farm near Danbury. In 1894 he and Mrs. Goodwin went to Dakota county, Nebraska, where they operated a small farm until 1909, when they moved to South Sioux City, Nebraska.

His beekeeping activity was begun soon after he arrived in the state, with a few hives acquired from his father's home near Danbury, Iowa. From this humble beginning he expanded to four large apiaries and at the time of his death was referred to as the largest honey producer in the state.

In 1918 a modern bungalow was erected from the accumulated earnings from his honey crops, and in the basement of the home was installed a small electric driven wood-working machine on which he constructed hives and frames.

During the month of June this year, Mr. Goodwin's health began to fail and he left off active work with bees, believing that a short rest was required. During the later part of July he became partially paralyzed and the end followed a brief illness.

Surviving him are his widow, two daughters, one brother and two sisters.  
W. P. Southworth.

# Wax Secretion In Winter

By C. L. Farrar

IT remained for Huber to design experiments which would conclusively demonstrate the origin of beeswax. There is some question as to who should receive the credit for the remarkable discovery of the wax scales, but Huber credits it to a German farmer, whose name has not been preserved. The "Honey Bee," revised, 1922 ed., paragraph 207, gives two prior claims for the honor: Martin John, in *Ein Beinenbuchel*, 1691, and Hornbostel, in the Hamburg library, about 1745. The workers before Huber, including Swammerdam and Reaumur, assumed that pollen was the main constituent of beeswax. They recognize, however, that the bees must make some change in it before it becomes wax.

According to our recorded knowledge and by the observations of beekeepers, bees only secrete wax when there is a need for it during a honey-flow or when fed. The important requisite is that their honey stomachs be well filled.

An observation which I happened to make on December 22, 1926, has brought up some interesting questions in regard to the secretion of wax. On examining some dead bees which had died from chilling just outside the entrance of a colony which is wintered in a packing case, I noticed one bee had eight thick wax scales protruding between the sternal plates of the last four abdominal segments. It must be a rare specimen! No; on examining twenty-five more bees, some of which were picked up on the snow some distance from the hives, twenty-three showed the wax scales present. Not all of the scales were as thick as those found on the first bee, nor were all of the wax plates covered, though the scales present were very distinct and most of the bees had from four to eight scales. On the twenty-third the colony was disturbed enough that live bees could be caught at the entrance. Of the twelve bees examined, only two of them had wax scales present.

There are two possible explanations for the secretion of wax at this time of year, although I have found no conclusive evidence to support either. First, there may be some physiological condition brought about by death which causes the wax

to form on the wax plates. This is indicated by the two examinations mentioned above, where practically all of the bees which died showed the wax scales, while of the live bees caught at the entrance only two out of twelve showed the wax scales present; second, that the bees showing the scales are the young bees which are passing through the physiological stage for wax secretion. According to Dreyling, 1903, reference in *Anatomy and Physiology of the Honeybee*, by Snodgrass, the wax glands of newly emerged workers are very poorly developed, but these gland cells soon elongate and become functionable. As the bees age, however, these cells decrease and degenerate. With this hypothesis, it is assumed that the bee normally passes through distinct stages of activity, due to its physiological development, such as that of the nurse bee, wax producer, pollen gatherer, nectar gatherer, etc. Since the honey stomachs of the bees in the winter cluster are fairly well filled, the heat from the cluster would favor wax secretion. The bees in the wax producing stage would consume more honey, due to its use in the secretion of wax; consequently they would accumulate more feces, so that they would be stimulated to leave the hive under more unfavorable conditions in order to rid themselves of this accumulation. Their flying for this purpose and becoming chilled would account for finding the large percentage of wax scales on the dead bees.

It was necessary to feed these colonies quite heavily last fall, due to the absolute failure of the honey-flow. As a result, the bees in working over the sugar syrup kept the temperature in the cluster up sufficiently that the queen continued to deposit eggs quite late. There was considerable brood in the sealed stage the latter part of October, when the bees were packed.

The bees may have some use for wax other than for comb building which we have not yet discovered. Again, we may be using some apiary practices which are detrimental to the life of the colony and which increase their consumption of stores. That is, late feeding, which causes the favorable condition for brood rearing, may cause the young bees to pass through the stage for wax production during winter confinement. The increased consumption of stores decreases their vitality, and may result in the development of

dysentery or stimulate them to leave the hive on days too cold for flight.

This preliminary report is submitted in order that others may make examinations for wax scales where colonies have been handled under different conditions.

—Contribution from the Department of Entomology and Beekeeping, Massachusetts Agricultural College, Amherst, Mass.

(The explanation of this incident is very probably in neither the first nor the second suggestion, but in the last paragraph, mentioning late feeding.)

When bees are fed heavily they are compelled to produce beeswax, if the food is retained a great part of the time in their body. Although they can produce wax at will, when in need of it, by consuming honey, they must produce some when their stomach remains full. A very positive instance of this was noticed by me, years ago, when some combs broke down in a hive in August. Although it was not the proper time to build combs, the large amount of honey leaking and the want of combs in which to put it compelled the bees to keep honey a long time in their honey sacks, and the result was that many bees were overloaded with wax scales. As the weather became rather cool, they appeared unable to use these scales, and the result was that a number of them died from their inability to rid themselves of a material which would have been very useful to them in normal circumstances. I suggest that the bees, fed heavily as stated by Mr. Farrar, at a time when it was difficult for them to build combs, owing to the cool weather, were compelled to remain in this position until they became restless enough to want to leave the hive. The heaviest ones would, of course, be the ones that suffered most and the ones most likely to want to leave the hive.

The observation made is quite interesting and there may be more of this, due to late feeding, than one is likely to know. It will therefore be well to keep the matter in mind and also consult with others having similar experience.

We know that bees which are fed consume a good portion of the feed in producing wax. That is why there is no profit in feeding bees to store honey or syrup in the cells. Too much of it is wasted in this manner. —Editor.)

## Poisonous Honey

By William H. Wolford

Reference in the March American Bee Journal, page 147, to the poisonous honey of Asia Minor that put the ancient army of Xenophon into a senseless state of intoxication and vomiting suggests a paragraph or two in review of a recent article by Dr. Woods Hutchinson, in the April 2, Saturday Evening Post, treating in a most interesting and non-technical manner the subject of food poisoning in general among individuals of the human race, as it is known to exist by the medical fraternity. It should be stated at once that the term "food poisoning" is used with limitations. This immediately becomes apparent when we discover that practically any article of present day diet is a poison food with some persons, an example of which most of us are aware being buckwheat pancake skin rash. Perhaps this thought of food poisoning becomes more comprehensible to the layman when it is said that most of us have one or more food antipathies. When we partake of our personally hostile food it reacts within our systems somewhat as a poison.

The author refers occasionally to honey in the text; but unlike varied bursts of expression in regard to honey that have found place in the public prints the past few years, much of which has been unjust and misleading, if not ignorantly presented, Dr. Hutchinson not only treats his honey references with the apparent impartiality of an honest critic, but seems almost to compliment our product by listing it among a few off-hand "nutrients" or "delicious and attractive" foods such as strawberries, clams, chocolate, and melons.

It may come somewhat as a surprise to many people to learn that honey as well as bread, milk, seafood, even tame porridge, will "cut up" consistently within the stomachs of some individuals and affect them erratically. Two principal causes are set forth for the so-called food poisoning with susceptible persons. The first, according to Dr. Hutchinson, is due to breaking down of the enemy foods in digestion; the second to so-called "trimmings" of many foods, such as husks, chaff, seeds and toxins. To wormwood in the honey is attributed the food poisoning action of the product of the honeybee; and the author elaborates a bit philosophically on Nature's seeming unpreparedness to diet which the human race thrust upon her. Scarce one or two plants to the thousand, even after centuries of domestica-

tion, cultivation and adaptation to human requirements, are declared safe for utilization as human food.

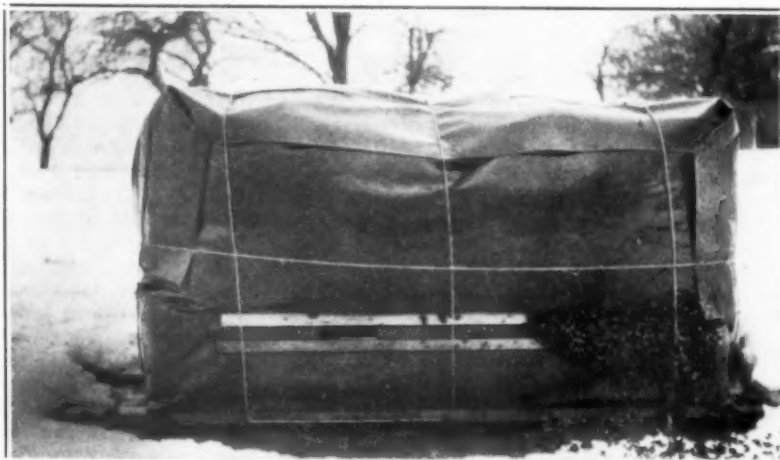
The thought that we humans do appropriate the seeds of Nature—such as wheat, for instance, and honey—in her plan to propagate the earthbound orders, is developed to show that most natural foods primarily are not intended as diet for man, but as means of replenishing their kind. We take from Nature the seed of wheat, and the milk intended for the calf, the fruit of shrubs and the food of honeybees, and attempt to continue life within ourselves. Internal bombardment, or food poisoning, resulting in itchings and skin rash, tormented joints and molested nerves, rheumatism, gout, and what-not, are proclaimed a natural and logical consequence.

There are flowers, resumes Hutchinson, which proffer nectar of such diabolic composition that the bees themselves are intoxicated and forced down in flight, to doze off drunkenness before continuing homeward to the hive. The Old World laurels

are mentioned not only as "putting an edge" on the nectar-laden bee in flight, but also as causing illness to humans who partake of the ripened honey. Buckwheat honey—coming from the same plant as buckwheat cakes—is asserted an explosive food with occasional people. Beekeepers as well as buckwheat flour millers may feel relieved to know, however, that customers with buckwheat food antipathies usually can avoid ill affectation by eating the buckwheat products with the evening meal. Sunlight, it appears, is necessary to precipitate the trouble, and at night, of course, there is no sunlight to bring it about.

In conclusion, there is nothing in this food poisoning information about which to become alarmed or apprehensive. It will not affect honey sales or it would have done so years ago. We may question, in an individual way, that foods can be poisonous or that our commercial honey, sweet and good as it is, really will make anyone ill; yet there is no harm, but real progressiveness, in keeping abreast the times in knowledge and thought and current topics as well as in productive methods of the industry.

## Too Much Packing



The statement has been widely made that there is no danger of too heavy packing in the preparation of bees for outdoor wintering. That may be true in some localities, but it does not apply to all conditions. The picture shows bees in the apiary of A. J. Wilson of New York State, clustering outside in zero weather. These colonies were heavily packed in dry sawdust. There was four inches of packing on the bottom, four to eight on the sides, and eight inches on the top, with sealed covers. Both colonies were on solid combs of honey in the fall, but came out in the spring with barely a handful of bees, and stores exhausted.

With a good windbreak and a moderate amount of packing, the bees will come through a long continued spell of severe weather in better condition than when too heavily packed.

# Recollections of the Editor

## EXHIBITS AT FAIRS AND MEETINGS

**D**URING the first few years of our beekeeping, we sold the bulk of our honey crop through commission men in the large cities, St. Louis especially. We were not known, had done no advertising, and could not push our product, except by personal solicitation.

In 1873-74-75, the Iowa State Fair was held at Keokuk, only six miles from our home. It was easy to make up an exhibit for the fair, and I did. But having no comb foundation, as yet, we could not make a very elaborate display. The little pound sections were not yet in existence; the only fancy package we had was a five-pound box with glass sides. We were already extracting honey, but the fair authorities did not know it under any name but that of "strained honey." The amount of premium was small. If I remember correctly, the first year, they offered only about \$10 on honey and bee items. I took second prize, a beekeeper of northwestern Illinois, R. R. Murphy, having on exhibit one five-pound box of whiter and better sealed honey than any of mine. He was rather abashed at having received first premium, for he had taken less pains than I had, to make a good exhibit. But I had no cause for complaint, for his sample was really better looking than mine.

The following season, 1874, I called upon the secretary of the State Fair Association, Mr. Shaffer, and represented to him that insufficient recognition was given to the bee industry. My suggestions were given fair consideration and a larger amount of premium was offered. But it was not until the third fair, of 1875, that a good premium list was gotten up. I was prepared for that and took the first in everything, some \$75. My best exhibit was of three combs in full-sized frames, nice, well sealed, white clover honey. In order to secure these, I had overhauled some three hundred colonies, some of them being natural swarms whose combs were fresh built. These three frames were arranged by me, in pyramidal shape, one behind the other, so as to conceal the bottom bar of the frames; in this way they made a perpendicular sheet of honey some 30 inches in height by 18 inches in length. Considering the rude methods we had at that time, the exhibit was creditable. My extracted honey was put up in fine jars of flint glass, very transparent, and an explanation was placed by the side of an extractor to describe the process of extracting. (Later we did some extracting before the public.)

I had also an observing hive, with bees, brood and queen. This exhibit brought me many customers, and after that I had much less difficulty in selling honey. I do not believe we sent a single shipment to commission men subsequently.

I was married shortly after the fair and I took great pride in serving some of my prize honey at my father-in-law's table. It helped me with sales in the vicinity of their home.

I do not believe our beekeepers take enough pains to exhibit their honey at fairs or public meetings. We neglect it ourselves nowadays, because of having so much to do. But you cannot succeed in selling your goods if you keep yourself hidden. Our business of bee supplies and comb foundation would have been a dead failure if we had not used printer's ink lavishly. We lived on a little brush farm, half a mile from the public road, and some of our close neighbors, even, did not know of our business, going even as far as enquiring about what kind of stone we used to make foundation. This was an actual question asked of one of our workers when he stated that he was working at "making foundation."

Fair exhibits are not the only thing which can advertise the beekeeper's product properly; he should also take advantage of any convention or meeting having to do with farm work.

We had in this vicinity a very efficient horticultural association, "The Warsaw Horticultural Association." It had a great reputation, for one of its presidents, A. C. Hammond, was for years president also of the state association. I belonged to it. As they were in the habit of meeting at the homes of their members in succession, I was privileged to have them for one of their meetings, when the then editor of the "Prairie Farmer," Mr. Jonathan Periam, was to deliver an address. I arranged to have the meeting at the most favorable time for us, during the month of August. We not only exhibited our products, but we extracted honey, made comb foundation and handled bees, before the members. One of them had gone to the neighboring city of Keokuk and had solicited the business men to attend. In this way more than five hundred persons attended the meeting and witnessed what we had to show. It did more to bring us customers and increase our business than a whole year of local advertising would have done.

I wish our friend beekeepers who

complain of the difficulty of selling their crop would try a little exhibit at a fair, a little judicious advertising. I know that some of them are very modest and do not like to put themselves forward; but it is not necessary that they should do the talking themselves. It is easy to find some good, active, self-possessed talker, who can explain the exhibit to the public. What the people need is to be informed about our business; the more they know about it, the better our goods will be appreciated, for "What is better than honey?"

Some of the extracted honey from the 1875 exhibit was preserved by us in the glass jars in which it had been exhibited and was forgotten on a shelf of the honey house. We happened to find it again some ten or twelve years ago and were very much astonished to see that, from white clover honey that it was once, it appeared to have turned to molasses, dark and without the fine flavor of clover honey. I could not comprehend this and wondered whether someone had not played a trick on me by changing it. But it is quite evident to me now that honey darkens with age and that the essential oils which give it its flavor evaporate readily. So it will not pay to preserve honey many years. I wonder whether the honey which was said to have been found in Tut-ank-ahmen's sepulchre was thus spoiled. In that case it is very difficult, if not impossible, to assert that it really was honey.

### Remedy For Serious Bee Sting Sickness

The Belgian magazine "L'Abeille et sa Culture," of Huy, Belgium, in its July number gives the following, by J. Jungfleisch, on the possibility of relieving serious cases of bee stings, which require that the remedy be applied, not on the wound caused by the bees, but in the circulation of the blood, as promptly as possible:

Cause the patient to vomit, by a slight tickling of the uvula in the throat, then make him drink the following draught: In a half glass of water, for a child five or six drops of ammonia, for a woman eight drops, for a man ten drops.

This remedy was found in the treatment of people for scorpion stings, in Egypt. Acting directly upon the blood, it is more practical than any application whatever made upon the wound. The poison of bee stings is at once diffused in the blood and such a treatment is therefore quite useful in serious cases.

# Confidence and Service

The Elements of a Successful National Organization

By Fred Denecke

**C**ONFIDENCE. Is this not a lovely word, fellow beekeeper? Embraced within its meaning may be found the very foundation of our business and social life of today. Can you imagine your early life without the confidence you placed in daddy, or mother, or your sisters or your brothers? This was the fore-runner of the faith that you will place in someone all of your life. As time goes on, this will change into confidence in your employer, or the trust that you place in your employee, when you are forced through necessity to let someone do for you those things which you cannot do for yourself.

Have you ever stopped to analyze to what extent this confidence is wrought into every activity of life? You buy a ticket in Seattle for New York City, enter a comfortable train and your only fret is about the many stops. There are no other worries, because you have confidence in the engineer, his train crew and all of the system back of the railroads.

You send your little boys and girls off to school. You go about your daily tasks, not doubting the good care they are receiving in their physical, mental and moral education for the future life. Why? You have confidence in the teacher, and the system back of her.

One of the outstanding characteristics of Caesar, the great Roman general, was his ability to choose high quality of leadership in others, and his consistent practice of placing responsibility in such men.

This implies that everyone is worthy of our confidence, but the man who trusts no one is to be despised, and the man who trusts everybody is to be pitied. As an example, let me refer to an experience. When I was secretary of our county association, we tried very hard to increase our membership. I succeeded in landing one small fry, whom I had never met before. He had a friend a few miles away who also kept a few bees. So our new member suggested driving over and getting his friend to join. Every possible argument was exhausted to sign his friend up, but he was determined that he couldn't afford to do it. We even transferred a couple of colonies of bees for him from box-hives into standard equipment. The next time the friends got together the non-member said: "Tell me, Jim, what does this association secretary get out of that dollar?" Jim replied: "That all goes to the association. He gets nothing out of

it but work and grief." The friend came back: "Don't tell me he doesn't get anything out of it. He was too persistent in trying to get my dollar, not to get something for himself."

There was a man too small to trust anyone, and he was as far wrong as the man who places confidence in everyone who comes along.

Now let us examine the word **SERVICE**. We will find examples all about us. In the evening, Edison says, "Let me light your house for you," and at the touch of a button there comes on the light that rivals the daylight. The engineer removes mountains for our accommodation. The corner grocer delivers to us the produce of the world. The bacteriologist studies and discovers for us *Bacillus* larvae, *B. pluton*, and *B. alvei*, and thereby helps us solve our production problems. The officers of our county, state and national organizations, especially the American Honey Producers' League, unselfishly sacrifice their time and energy for our benefit. These men are our servants. Some public servants may have received high financial reward, but this is incidental. Many of them have not. It is the service they have rendered which makes them great. They have been making and continue to make the world a happier and better place in which to live.

In an old country churchyard in England there is a plain slab of stone, almost hidden by ivy, which bears this epitaph:

"Here lies a miser who lived to himself,  
And cared for nothing but gathering pelf.  
Now where he is, or how he fares,  
Nobody knows and nobody cares."

This sentiment might be appropriate of millions who have lived before or since, but it is exceedingly rare that friends are frank enough to say it on stone.

In St. Paul's cathedral there is a massive but plain statue, beneath which is the following inscription:

Sacred to the Memory  
of

General Charles George Gordon,  
who at all times and everywhere  
gave his strength to the weak,  
his substance to the poor, his  
sympathy to the suffering, and  
his heart to God.

What a difference between these two records!

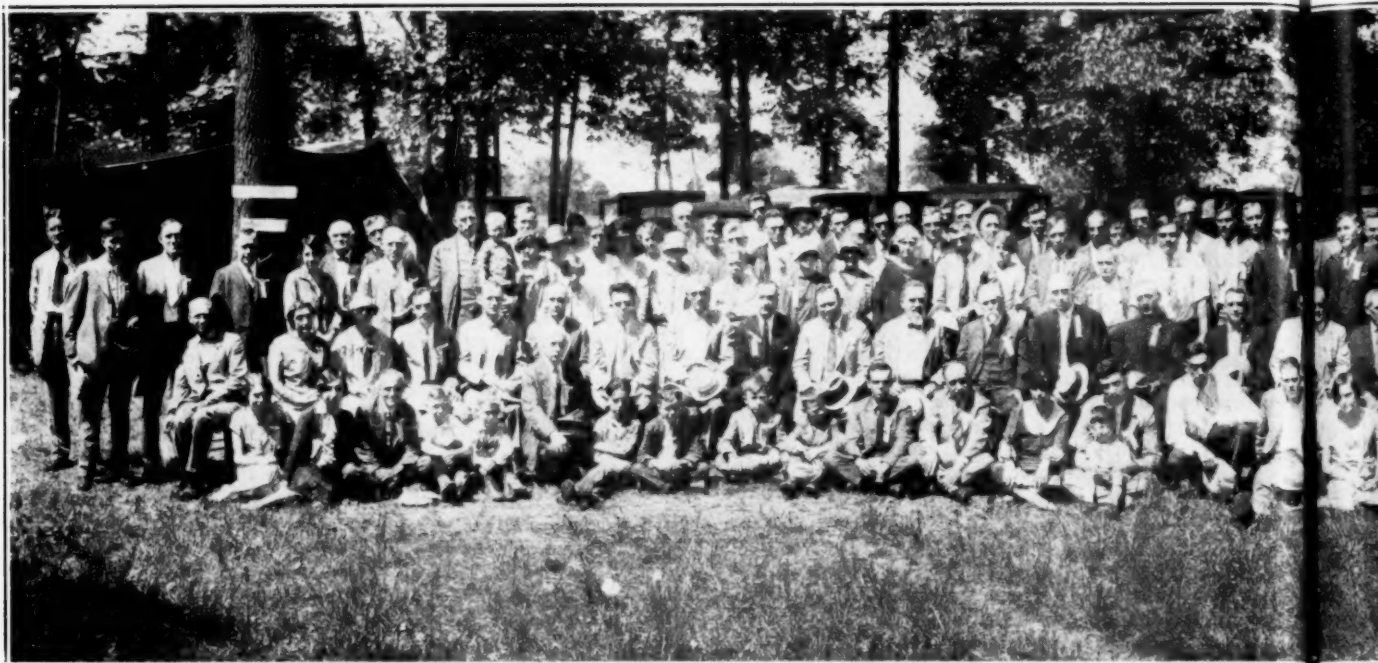
If you have followed me to this point you will probably wonder what all this has to do with a beekeeper who is trying to make an honest living producing and selling honey. We should all be agreed that in order to put the beekeeping industry where it belongs, we are in dire need of a 100 per cent representative national organization. It is not so much who you are, but what is behind you, that counts. The American Honey Producers' League is putting the right foot forward for the last time. Are we going to wake up and give these men who are elected to be our servants our confidence, which they are entitled to? These men are waging a heroic battle for the betterment of our conditions, without selfish or material motive. They are impregnated with the desire, the will and the ability to bring our American Honey Producers' League in line with other organizations of the same character. There is an estimated number of at least 800,000 beekeepers in the United States. Are 10 per cent of us red-blooded, fair-minded and willing enough to help ourselves? If so, what do you think a league of 80,000 members could accomplish if you would join and place confidence in your chosen leaders? The corn sugar people would not dare to try to abolish the pure food law. Neither would a honey dealer dare to blend our honey with cheap, foreign imports and brand it "White Clover." The foremost Seattle baby specialist prescribes Karo Syrup for the sweetening of all baby foods. In how many domestic science departments of our colleges and universities is honey not spoken of as a **SUBSTITUTE** for sugar? Would this be possible if a powerful league conducted a national educational campaign, based upon scientific facts and carried out by scientists of national reputation? All food product manufacturers stress scientific information from men of national renown about their products.

How can we expect the League to accomplish great things with less than one-tenth of one per cent of the beekeepers supporting it? We seem to be content to plod along as best we can alone, each one for himself, and the devil take the hindmost.

But the theory that made Napoleon a noted general was, "March divided, but fight united." Now please stop and ponder over this for a few moments.

I say, beekeepers, unite. You have nothing to lose but your chance. How can this be done? Write out a check for three dollars to the American Honey Producers' League, C. L. Corkins, secretary, Laramie, Wyoming. Get your neighbors and friends to do the same.

Washington.



GROUP OF BEE FOLKS AT THE MEETING PHAM

About three hundred were in attendance states

## Honey Sales

By Earl C. Reed

COMMODITIES that are good sellers do not vary widely in price, within territorial trade districts. While you can buy Wyoming gasoline from 8 to 10 cents a gallon less east of the Mississippi River than you can right out here, where it's pumped out of the ground, you don't find it possible to dicker with one dealer or another with a view to saving a few cents a gallon. The result is when you want some gas you buy it at the nearest filling station. Everyone does the same thing, and no one station or group of filling stations is regarded as high priced, and no one skimps along until they can get it a little cheaper. You say gasoline and honey are not parallel cases. No, they are not, under our present sales management. We poor beekeepers don't sense the importance of an even price in order to make some money out of our business. I'll quote my honey crop a half cent cheaper this year than I did last, so as to make a cleanup and get the money. But, to my surprise, some other fellow had the same idea, only he had it stronger than I did and he's still a cent under me, although he didn't get to establish the market, as another fellow who carried over some honey was afraid it would spoil and he went

a half cent still lower, and so the throat-cutting progresses and the profits decrease.

In a local way, one man sells a ten-pound pail for two dollars, another for a dollar and a half, and still another for an even silver life preserver. What's the result? The consumer who might otherwise buy some honey puts it off, for a neighbor told him where he could get it "so cheap." The grocer won't handle it because he can't buy it so as to sell it at a dollar a pail, so a lot of possible customers who can't be reached except through the retail grocer are lost entirely. And the wholesaler? Oh, several of their traveling men told them about honey selling up the road a ways at car-load prices in retail packages. So they make a special out of what stock of honey they may have on hand, close it out, and they are through for good. Whenever a beekeeper sells a package of honey and doesn't recognize the regular trade channels he is hurting the sales and the popularity of one of the best articles of food that ought to be on the market.

One more phase of the price variance I want to mention. This year packers of honey have bought for 7½ cents or under; the freight rate

of 1.35 prevailing to practically all eastern markets means a delivered price of not to exceed 9 cents per pound. How much lower in price do you find the retail package of honey on the shelf this year than last? One leading brand of honey I have found on the eastern market at 40 cents for a 14-ounce jar; that figures over 45 cents a pound. In other words, the selling cost on that honey is boosted to 36 cents, or four times the production cost and freight to market. I am told the five-ounce jar is the leading seller. Think of it! Not enough honey for one pancake. Who would think of buying a five-ounce package of Karo syrup, which is perhaps the keenest competitor of honey? Of course, the packing cost in such a diminutive package is great, but the profit likewise is great to the bottler, and the sales resistance to our product is much greater. If honey ever finds a place on the world's table it will have to be at a reasonable price and in reasonable sized containers. If it doesn't find this place, honey sales are going to continue to be restricted and producers will continue to hold a lot of cheap honey to reach the consumer at an exorbitant price in the present sluggish manner.

Wyoming.



NG HAMILTON, ILLINOIS, AUGUST 9, 10, 11, 1927

attendees states and the District of Columbia

## Mrs. Berkshire's Honey

By Florence Folsom

MRS. BERKSHIRE was a hard-working widow, living in a small North Dakota town on the C. & N. W. railroad. She had two sons, aged respectively ten and twelve years. Their mother was very ambitious to give them good common-school education. For the first year after Mr. Berkshire died, two years before the time this story begins, the wolf had looked in at her windows pretty regularly; but at last she had succeeded in getting a few music pupils and, together with helping now and then a day at the hotel, she was beginning to make both ends come nearly together, when one of her out-of-town friends sold out, and, in packing up the last of her possessions after the sale, they found that they had four hives of Italian bees that had been forgotten and left in the cellar. Someone in the family suggested that they give them to Mrs. Berkshire and her boys.

Well, that was the beginning. It was early spring—the very best time of the year to begin beekeeping, so her friends said; and, acting on their advice, she immediately sent for supplies and equipment and two more colonies of bees and two selected queens.

In the meantime, Mrs. Berkshire

made arrangements with a farmer living half a mile out of town to allow her to place her beehives in his sweet clover field near his barns. The farmer, Mr. Yelats, had been a beekeeper a few years previous, when he lived in the state of Nebraska. He agreed to care for the apiary and attend to hiving the swarms and would not listen to any contract or agreement to pay him for his trouble, and laughed at her when she suggested that the bees might be an injury to his crops. He told her that the old idea of the bees sucking the nectar from the flowers and damaging the plants was absurd. "Nothing to it!" he said. "Why, in many cases the bees help in the pollination of the flowers, insuring a good crop!" When she mentioned, also, that the bees might puncture his fruit and suck the juices, he laughed harder than ever. "Bees never puncture perfectly sound fruit, my dear woman; but if the skin is broken by some other means, bees will often suck the fruit dry."

By reading bee bulletins and talking with Mr. Yelats whenever she had the opportunity, Mrs. Berkshire learned that it was not advisable to keep more than one hundred colonies or hives of bees in one apiary, and that apiaries should be two miles

apart; and that the single ten-frame Langstroth hive is not large enough for the development of a good, healthy colony of bees; that one should get at least a twelve-frame hive, in order to give the bees plenty of room.

That first year Mrs. Berkshire's six colonies of bees netted her 157 pounds of honey for each hive, or 942 pounds. After reserving 45 pounds of honey for each colony to consume during the winter, she had 472 pounds left to sell, which she disposed of locally at 25 cents per pound, giving her a neat little nest-egg of \$100, after she had deducted \$18 for a few incidental expenses.

Mrs. Berkshire was much pleased with her bee venture, but did not feel as if it were proper to take so much of Mr. Yelats' time, and so proposed to him that they should become business partners. They agreed to each put in equal amounts of money and enlarge the apiary. The Berkshire boys, although young, had helped Mr. Yelats a great deal during their vacation, and he advised that while he could have their help they should commence at once on a bee cellar for their colonies.

Mr. Yelats put the boys at work, as a change from digging in the cellar, helping him make hives for the

bees; and his previous knowledge of bee raising was of great benefit to the company. For instance, he built the bee cellar as an addition to his house cellar, even using a part of the residence cellar. He arranged it so he could enter it through the furnace room as well as from a door on the outside of the cellar. He was particular to purchase only strong colonies of bees, and provided plentifully for their winter supply of food. He told Mrs. Berkshire and the boys that one of the special advantages of a residence cellar for bees was that there was abundant ventilation without extra provision being made for it; and the temperature was more equable than it was possible to have it in a cellar exposed to sudden changes of temperature on the outside walls, even if they were 18 inches thick and made of stone or cement.

These beekeepers have been in the business three years and have several hundred colonies of bees. They limit the number of colonies to one hundred for one location, and do not place another apiary for two miles away. They have been compelled to negotiate with several other farmers for desirable locations to place their apiaries, one of them being six miles distant.

Of course one has to select a locality and place the hive away from the winds with protection from hot sun during the hottest part of the day, so the bees will not hang out in front of the hives instead of working; and also the apiaries must be placed so that the bees will not prove a nuisance to passers-by or disturb stock, as bees are sometimes dangerous, especially to horses. They are more inclined to be annoying in

early spring, at the time of their first flights, and sometimes light on clothes hanging on lines. So it is not advisable to remove bees from the winter cellar while clothes are hanging on the line.

The ground where the apiaries are placed should be kept free from weeds and tall grass. Everything about and near the hives must be kept clean.

### Good Words From Algeria

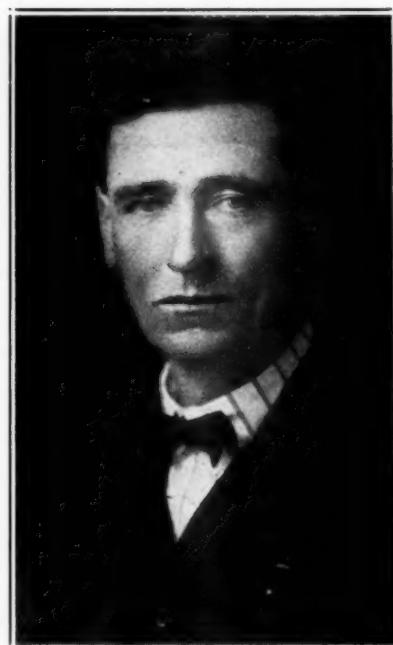
In reading the July number of the American Bee Journal, I became so interested and enthusiastic that I have decided to write you and tell you so.

I simply have to compliment you on the "get up" of the Journal, and will say that it is more suited to Algeria than any of the several journals I receive from France.

You mention in the editorials "Beekeeping in Kabylia." That interests me because I have bought and transported over a hundred of the cork hives you tell about.

You mention "automatic smoke." I was raised in Idaho and owned and operated over six hundred colonies for comb honey there, at one time, yet I never heard of using a smoke pot as described, but here in Algeria, when I arrived (seven years ago) I helped an old-timer take off honey and he used a smoke pot exactly as described by Frank Beach, and I must say that it is far ahead of any other device for taking off honey, especially when honey is all capped and you have to deal with the native Punic bees. His windbreak is also very good and made exactly as I make mine down here.

"Personal Recollections" of the editor also comes in for its share of



A. H. Davies, President of National Beekeepers' Association of New Zealand

praise. You have passed through at Hamilton, Illinois, just what I have passed through here, and I arrived at the same conclusions as you. Possibly I would not have done so if I had not been influenced by the writings of the American Bee Journal, but I believe I would have come very close.

I could mention other good things I have gathered out of the July number. I am not like the beginners in the editorial "Overdoing the Work." All I can say is, keep the Journal coming.

Ross I. McClanahan,  
Blida, Algeria.



T. C. Johnson, well known Indiana Apiary Inspector, among his bees at Logansport

## THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

### SIZE OF HIVES—INCREASE, ETC.

1. I have twenty-four hives of bees in twelve-frame hives and some in Dadant hives, and produce extracted honey. I intend to buy more bees next year, but have not decided whether to equip for comb or extracted honey. Which is the most profitable to produce, comb or extracted honey?

2. Is it easier to control foulbrood in comb honey production than in extracted honey production?

3. It seems to me that everybody is producing extracted and that the market is flooded with it. Therefore it seems to me that comb honey ought to sell quite well, as there are so few comb honey producers compared with extracted producers. What size hive do you advise for comb honey? Is the Dadant hive too large?

4. What size sections are in greatest demand?

5. Is beekeeping still profitable, or are there too many producers already?

6. Which is the best way to increase my bees, by buying package bees, or by doubling up my colonies in spring which I now have?

OHIO.

Answers.—1. People do not agree on the difference in cost to the bees of comb and extracted honey. Dr. Miller thought that about one and a half to one was the difference in production between extracted and comb honey. I believe that the difference is two to one. But the difference in production is not the only thing to consider. If you have a large sale for comb honey and no sale for extracted, better produce the comb honey. As for us, we believe that the honey for the masses is the extracted honey, so that we would produce extracted honey even if we could not so readily sell it. So this matter must be settled by yourself.

2. I do not know that it makes much difference if you are careful and examine your colonies every spring before putting on the supers. But if you are careless and put supers on hives containing foulbrood, and extract the honey and return the supers to other colonies, you will be sure to spread the disease more readily than in comb honey production.

3. Any hive will do for comb honey, if you reduce the size of the brood chamber to the space occupied by the queen with brood. Very large hives will not do for comb honey if the queen is not prolific, because there will be lots of room for honey in the brood chamber. So if the queen is not prolific, you must reduce the space to the combs actually occupied with brood. Dr. Miller's way was to use two stories of eight-frame hives, then remove one for the honey crop, leaving in the hive only the combs well filled with brood. But this compels you to use the removed eight combs for weaker colonies, or for extracted honey production. This adds a great deal to the labor.

4. The 4¼ sections are the ones in best demand.

5. This may be answered by yes or no, according to the activity, the method of management and the location of the beekeeper. Those who are in a good location and do the work right are certainly not thinking of leaving the business, especially if they have a little activity in selling their crop.

6. Many people like to buy packages from

the South. I believe either way is good, and this also depends upon the circumstances in which you find yourself.

### PICKLED BROOD—MOVING BEES

1. What is the principal cause of pickled brood, and what can be done to prevent or check it in spring?

2. Is there a stage in pickled brood in which it somewhat resembles American foulbrood, somewhat ropy and yet the skin of the larva is present and it is lighter colored than the gluepot American foulbrood?

3. What is the danger in very thin nectar being present in the combs at the time of moving in the summer?

NEW MEXICO.

1. I do not believe anyone knows the origin of brood diseases any better than that of human diseases. All that our scientists know and have taught us is the existence of germs in diseases, but whence those germs originally come is still to be found out. They tell us that there is a disease of bee larvæ, sometimes called "pickled brood," but more properly "sacbrood," because the skin of the larva remains whole and encloses the body as in a sack. This disease is said to be caused by a virus. But that is as much as we know. What we don't know would make a big book.

2. I do not believe that sacbrood is ever ropy. In European foulbrood there is a little ropiness at times, while there is a great deal in American foulbrood. But in European foulbrood the larva dies before the cell is sealed. In sacbrood the larva is usually sealed when it dies. But it may be lifted out bodily without leaving any decayed matter in the cell. This cannot be done in American foulbrood. Dr. G. F. White wrote a bulletin, No. 431, U. S. Bureau of Entomology, in 1917, in which he describes this disease fully. He says that the virus of sacbrood loses its virulence inside of thirty days.

3. Moving bees in the summer, with thin nectar in the combs, is not very much to be commended; but we have moved bees short distances, in such conditions, by moving them during the cool part of the day, using a wire screen over the brood chamber, with a space of two or three inches between the screen and the top of the combs and no cover. If the moving is done while the sun does not shine, and the distance is not great, the roads smooth, bees may be moved even if they have some very thin nectar. But if there are any supers on the hive, I would recommend to take them off and move them separately.

### GENTLE BEES

Although I have read much of Italian bees as gentle as Caucasians, etc., I have not had the good fortune to locate any so gentle (mine always show enough temper to enforce the wearing of a veil against the one or two stings that are sure to come).

Since I keep them on a small city lot and am very desirous of avoiding any trouble through over-nervous neighbors, I am still seeking for that gentle bee that can be "handled without a veil." (I had one Caucasian last year, and she was a wonder for that, though she died off during the winter.) Questions:

1. Where could I obtain a truly gentle Italian strain?

2. Would Caucasians swarm too much for comb honey? How about a Caucasian and Italian cross, to increase gentleness?

3. Do you know where I might secure a Banat queen at regular queenbee prices? (I merely want to experiment with this race on a one-hive scale.)

4. Would it be wise to unite two hives to make one at the first sign of the fall honeyflow to increase honey production?

NEW YORK.

Answers.—Almost all breeders aim to rear gentle Italian bees. But some breeders have bred into the Cyprian race to increase beauty. This was at the expense of gentleness. Again, there are times when almost any bees will be cross. We cannot possibly insure that all our bees will be gentle at all times. But if you enquire of the breeders for extra gentle Italian bees, I believe you will get them.

2. A mixture of Caucasians and Italians is not more desirable than either of those races, pure. Caucasians swarm more than Italians, but not so much as Carniolans.

3. No, I don't know where you can secure Banat bees. Besides, I do not know that anyone can insure Banat bees to be anything but common black bees, since the Banat is just a province of Central Europe, not separated from other provinces by any mountains or similar barriers.

4. Uniting bees before the fall flow will do if you have too many colonies or if one of them is weak. But I would not unite two good colonies to increase the crop. There is always some danger of their fighting and weakening themselves, if united before the flow of honey.

### CELLAR WINTERING

I am going to build racks in my bee cellar to set the hives on, and what I want to know is, how close to the floor can I have the hives, and do I need to have an extra board extending out from the bottom board of the hives to keep the bees from falling to the floor should they come out? I try to keep the temperature so they are quiet all winter, but should anything happen that they got restless, would the board be a protection? I thought of putting a 10- or 12-inch board flush with the bottom board of the hives, having it run lengthwise with all the hives.

MINNESOTA.

Answers.—We have always preferred to have the bottom row of hives about a foot from the floor, as there is always more or less moisture in our cellar. We tier them up four or five high.

As to having a board to keep the bees from falling out if they come out of the hive, we do not think this necessary, because when a bee leaves the cluster it is most probable that that bee is restless and will probably wander back and forth and disturb the cluster. It is better for the few bees that leave the hive to drop on the floor and get lost. At least that has been our experience. The main requirement is to keep the temperature at the point where it is least likely to allow a disturbance.

### ITALIANS OR CARNIOLANS

The Minnesota Bee Supply Company referred me to you for information regarding the relative merits of Italian and Carniolan bees, and where to obtain queens and bees.

MINNESOTA.

Answer.—The Italian and Carniolan bees are equally good honey producers and gentle bees. But we prefer the former because of its color, which enables us better to recognize them when there is a mismatching with the common bees, since they have three yellow rings on their abdomen, when they are pure, while the Carniolans are grey bees. You can obtain the Italian bees from many breeders. See the advertisements in the American Bee Journal.

## BUILDING OF COLONIES

I am starting up in the bee line and am doing so by means of package bees (three pounds) from the South. I have your book, "First Lessons," a good book, but it does not tell me how to get these small colonies, which arrive about the end of April, up to a twenty-frame colony by July 1, when sweet clover begins to bloom. I had only a few, say four frames, of drawn combs with honey (twelve pounds) to each. I made up ten frames with comb foundation, which in some cases was partly destroyed by them. I did not feed them syrup, which I should do. But I would like to hear from one of experience how these can be got up to full strength by July 1.

VIKING, ALBERTA.

Answer.—As you are at the fifty-third degree of latitude, or 13 degrees farther north than we are, and close to the mountains, it is quite a nice task to get three-pound packages to the size of full colonies in sixty days.

My advice would be to get as many combs as possible built out the previous season, as they are not apt to use comb foundation until there is a little honey to be harvested. When they cannot use it, they are apt to tear it up, as you report, in order to use the wax of it close to the center of the cluster. Of course, if you feed heavily, you may be able to get them to build out the foundation, but it takes lots of food to produce a few ounces of comb. Probably at that time it would take fifteen or twenty pounds of sugar to build one pound of comb.

If you will bear this matter in mind and keep the hives warm, and feed regularly what they can take and use, you will be doing all that is possible under the circumstances.



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## SHIPPING CASES

A real display honey case—one that will help sell your honey.

Pails and square cans

Write for prices that can't be beat.

**Charles Mondeng Company**

159 Cedar Lake Road  
Minneapolis, Minnesota

I believe that if I were living as far north as you are, I would try to keep the hives in some sort of cold frame, using the sunlight through glass over the hives, just as if you were trying to produce early plants for the garden. I had bees for a year or two in a hot-house and I never saw bees reproduce so early. Warmth and plenty of food is what you need to get early breeding.

## DEAD BROOD

I have two colonies that have dead brood on frames, that they could not cover sufficiently on two cold nights, after a long spell of very warm weather. I call it chilled brood. Is there any danger of this turning into foulbrood? Will the bees clean out those dead masses after a while? What would be best to do with it?

NEBRASKA.

Answers.—It is quite probable that the dead brood is what you believe it to be, chilled brood. However, it is hardly advisable to leave it for the bees to clean out. Better cut out all the dead brood and bury it or burn it.

It is very easy to recognize chilled brood from diseased brood. In chilled brood every cell of brood dies at the same time. In brood that has died of disease it is scattered and irregular.

If you have any doubts, send a sample of the dead brood, carefully packed, to James I. Hambleton, Apiculturist, Bureau of Entomology, Washington, D. C., and ask him to have it examined and to let you know. If it was foulbrood, you would have to transfer all the bees and destroy all the combs, or treat them. They would send you some instructions from Washington.

## MOVING BEES

I will have to move my bees about twenty rods. What would be the best time of the year to do this, and how? Should I move them off about four or five miles and then bring them back in the spring?

KANSAS.

Answer.—The method you suggest, to move your bees four or five miles and then back again to the intended spot, is good, as they will not recognize the place after a few days and will learn the new spot. But this is too expensive a method.

Drum them and smoke them well, in the morning, after having kept them closed in all night, if the weather is sufficiently cool so that they will not need much air. Then take them to the new spot and release them while they are under the excitement, placing a slanting board in front of the entrance, so that they may not know at once that their location is changed.

If you are afraid of losing some of the oldest bees, leave one or two of the weakest colonies on the old stand, so that the returning bees may enter them. In this way you will not lose any. The weak colonies are moved the next day.

The important thing is to make the bees feel that something very unusual is taking place and to put them in the same condition as they are when they swarm. We all know that, at swarming time, they take good care to recognize the place of their new home before taking flight. Causing them to fill themselves with honey and keeping them confined a little while will have a similar effect.

## QUEENLESS BEES

I wish to know what I should do with one of my colonies of bees. They seldom come out of the hive and do not make honey. The hive has a fair amount of bees in it, but recently I have found about an inch of dead bees in the bottom of the hive. Do you think there should be a new queen? I cannot tell if there is a queen in the hive or not. If I put in a new queen, do you

think they would build up the swarm and begin to work?

NORTH DAKOTA.

Answers.—It is quite probable that the hive is queenless. You should open it and examine the combs and see whether there is any brood. If there is worker brood, it is probable that the queen is too old and needs to be replaced. If you buy a queen, do not destroy the old one till you have the new one ready to introduce.

If the colony has some drone brood only, it is likely that it is queenless and has some drone-laying workers. In that case it is about worthless. The only thing to do is to put a swarm into it. You can recognize drone brood because the cappings of it are protruding like the tip of a cartridge.

You should read some book on bees, as you will need to learn those matters if you expect to keep bees successfully.

## WINTER FEED

I have about one hundred hives of weak bees I want to get in shape for winter. They all have young queens, but this has been a very dry season here and bees have not very much more than lived and laid up stores for the winter. These were young colonies I made after the early orange flow, thinking they would have plenty to work on before winter, but such has not been the case. Due to high freight rates, honey is high and so is pure sugar, and I wanted to ask you if feeding them cane syrup would hurt them, the queen or brood. My idea was to make two yards near my plant and put a "Boardman" feeder on each one and feed them diluted syrup until they stored sufficient food to carry them through the winter. Really, due to the climatic conditions here, I could feed them all winter if necessary, but wanted to ask you about feeding this cheap syrup, as to whether it would hurt the bees.

FLORIDA.

Answer.—I do not know that I understand just what you mean by cane syrup. If it is what we call here "New Orleans molasses," it is not very good for bees, and I do not know whether bees will accept it. If they accept it, it will probably do in your locality, because you have very few days when the bees are confined to their hives. Here, such syrup would be death to them.

If your cane syrup is better than molasses, it will probably do very well. In your southern climate there is very little trouble to winter bees.

## GRANULATING HONEY

Please let me know through your valuable Journal how I could get honey to granulate—whether I could add some innocent chemical to help it some, or otherwise. I have located a jar in a refrigerator now two weeks, but it won't give up being liquid. I, for one, would like to eat honey granulated, also could make some business selling it in blocks wrapped in paper. The northern beekeepers cry about their granulating trouble. Wish we here could get some of it.

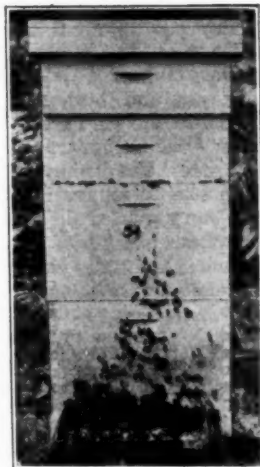
DOMINICAN REPUBLIC.

Answer.—Your country is about the nineteenth degree of latitude above the equator, while we are here at about the fortieth. I do not think that honey will granulate readily where you are, unless it is kept a long while in a cold place. Some sorts of honey would probably granulate earlier than others.

With us, here, honey granulates often before cold weather comes, in fact just as soon as the temperature falls below 70 degrees. But down in the state of Louisiana they have grades of honey that never granulate; yet such honeys when sent up to us granulate readily. This is quite an evidence that the mean temperature has much to do with it.

I do not know of any method by which you could cause your honey to granulate.

Capacity 40% Greater  
than the 10-frame hive



Apiary of 50 colonies, like the above, produced 250 pounds of honey per colony in 1925, at Hamilton, Ill. Ten-frame hive average for year, 150 pounds.

More Honey at Less Cost  
with the

## Modified Dadant Hive

B. F. Kindig, formerly State Apiary Inspector of Michigan, writes:

"The future of the honey business depends upon the profit that beekeepers will make. As beekeepers, you and I have a great deal to do with the cost of production in our yards. . . .

. . . "An Iowa beekeeper writes me: 'After several years' experience with the Modified Dadant hive, I find that it has produced all of 100 per cent more honey with 50 per cent

less work than any other hive we have used. I have never lost a colony in the Modified Dadant, and they are so strong that every season is a good honey season.'

"A beekeeper from Missouri writes: 'I have bees in eight-frame, ten-frame and Dadant hives and consider the latter far the better. The Dadant hives yield from 50 to 100 pounds more honey per colony than the others. They are more economical to run and it is not necessary to go through them so often.'

(See American Bee Journal, March, 1925, Page 113)

Modified Dadant hives are sold by all dealers in  
Lewis Beeware and Dadant's Foundation

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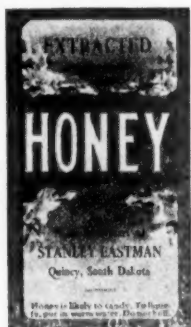
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Hamilton, Illinois

## An Appeal From the Flood District

By W. E. Anderson

The beekeepers of the flooded districts of Louisiana are badly in need of help to rebuild their apiaries, their homes, their farms, destroyed by the flood. Please help them. This is urgent. A little from each will do a large amount of good.—Editor.

THROUGH the courtesy of the American Bee Journal in a previous issue, an appeal was made to beekeepers throughout the United States to give assistance to their fellow beekeepers of Louisiana who were made destitute as a result of the most disastrous flood in the history of the state.

Several of the bee supply houses, a few beekeeping organizations, and likewise some of the beekeepers from all parts of the United States have responded nobly by giving money, bees, and supplies to help these stricken beekeepers in their hour of need.

In behalf of the beekeepers of the flooded area of Louisiana, the Reconstruction Committee wants to take this occasion to thank the various donors for what they have given. Are you one of the donors?

To date, August 31, there has been received the following. Cash, \$520.93; nuclei, 5; packages of bees, 189; queens, 263; colonies of bees, 12; veils, 40; cages, 20; frames, 500; pounds of foundation, 450; wax, 35 pounds; 285 hives complete with frames; a letter of credit for \$500 in supplies with a 20 per cent discount by dealer; \$1,000 from the American Red Cross, and free transportation by the American Railway Express Company.

It is quite apparent that when the above is prorated among 282 beekeepers, who had more than 11,000 colonies of bees which were damaged or lost by the flood, the amount that each beekeeper will receive will be very small in proportion to his loss, unless further assistance is forthcoming at once.

If a friend of yours was in dire need, would you not give him a dollar or more and a good package of bees or more? Yes, you would. These beekeepers for whom we are appealing for assistance are friends of yours, although you may not know them personally, and they are in dire need of assistance. What will you do?

Consider for a moment that the entire population of their community for many miles around is in need of assistance. Hence they cannot go

to a neighbor and borrow even the necessities for a meal.

The Reconstruction Committee wishes to impress upon all beekeepers the fact that the mild weather of Louisiana makes it possible to install packages and build up colonies throughout the entire fall, and even into the early winter months. Therefore, after the honey is harvested in states farther north, we will greatly appreciate all packages of bees, either queenless or with queens, which you might spare. It is probable that our privilege of free express transportation will be withdrawn about November 1; hence we urge that every effort be made to ship bees before such privilege expires. The committee cannot but feel that every beekeeper in the country, besides expressing their regret that such condition exists among their fellows, would also want to express their regret in a material way.

If you are going to assist by giving cash, please send it to W. E. Anderson, Box 517, Baton Rouge, Louisiana, up until November 1.

### Shipping Instructions for Bees and Equipment

The express company will transport, free, all donated bees and equipment when billed as follows: "Harry D. Wilson, Commissioner of Agriculture, New Orleans, La."

All bees and bee supplies are being assembled in New Orleans for distribution from that point. Therefore, if your donation is to be of this character, please ship as instructed above.

When the committee has completed its work, and distribution made of the bees and supplies which have been accumulated, a complete list of the various donors, together with what they donated, likewise a list of beekeepers of Louisiana who received bees and supplies, and how much, will be furnished for publication.

Will your name appear as a donor? If so, please make your donation at once.

### Pennsylvania Report

The Pennsylvania Beekeepers' Association has recently issued a report of the twentieth to twenty-fourth annual conventions in one volume. It is paper bound and contains 68 pages, including some advertising. Pennsylvania beekeepers should find it of considerable interest. Those interested in securing copies should address the secretary, Charles N. Greene, Department of Agriculture, Harrisburg.

## What Are Bees Worth?

Question Answered by C. P. Dadant

**W**HAT is a stand of bees worth? This is an important question in buying and selling bees. Some beekeepers will sell a hive of bees—such as it is—for \$5, or even less; \$10 is considered high by some people. Consider a Modified Dadant hive, for example, with one super, eleven frames straight comb on wired foundation in body, ten ditto in super, all fully drawn and in good condition (average), with a good quantity of bees, Italian or Carniolan; what does such a hive cost the beekeeper? And what can he afford to sell it for, and what can he generally expect to get for it? Certainly nothing like \$10. We consider good drawn combs, brood size, worth a dollar apiece.

We wish you would discuss this matter in the Journal, giving prices on actual sales, your own and other beekeepers over a certain range. There ought to be a wide difference in the value of a "hive," according to what it is and what is in it. But we have never seen the matter discussed or any information given in the Journal or any bee book.

Texas.

Reply:

The value of a hive of bees depends upon so many different conditions that it is almost impossible to make a positive statement that will prove correct anywhere.

In the first place, the demand for hives of bees is not positive everywhere at all times, because, unlike horses, cows, pigs, chickens, it is impossible to foresee the demand. Every farmer owns horses, pigs, chickens, etc., while only about one farmer out of every fifty either cares to own bees or will look after them if he owns them. Let me tell an experience of mine in the sale of bees.

We had a friend, living near the Illinois River, J. M. Hambaugh. He was born there, owned bees and succeeded fairly with them. He came to see us, about 1880, and adopted our methods, manufactured Dadant hives and transferred his bees into them. He increased his apiary to about eighty-five. Then he took it into his head to move to California. He sold everything he had, except the farm and the bees, and bought a ranch in California. This was about thirty years ago. After two or three years of residence out in California, he decided to sell the farm and the bees. He wrote us, but we could not make him a decent offer, as we were loaded with work

and had some 500 colonies ourselves. He found a buyer for the farm, but could not find one for the bees. He then wrote me to please make arrangements to sell those bees at auction. I went to the place, about one hundred miles from here, and enquired as to the possibility of selling those bees at auction. Oh, yes, they could be sold. "How much?" "From 75 cents to \$1.25 per colony." This was so preposterous that I decided to make him an offer, in spite of my not wanting to buy the bees. I offered him \$3 per colony. He accepted. There were about 150 supers full of extracting combs, an extractor, and a few small tools. I arranged with a young man, living near the spot where the bees were located, to take care of them for me by following the instructions that I would send him. He did, and during the first year I made enough out of those bees to pay for half of the cost, giving him one-half of the crop. The following season he was so encouraged that he took the bees off my hands at the price they had cost me. I had made a profit of 50 per cent in one year. Those bees were in large Dadant hives, partly Italian, and in good shape to make a profitable investment. But none of the farmers knew anything about handling them, and, had it not been for finding this young man, who became an active beekeeper, I should have had to ship them to my home.

The value of large Dadant hives could be figured at about \$9.50 for the hives, supers, comb foundation, all ready for use. The building out of the foundation might be figured at \$2 per colony; queen and bees, \$5, making in all \$16.50. If you expect to sell bees, for profit, you should get about \$20 for colonies of pure Italians. Bees in Langstroth hives would be worth about two-thirds the value of Dadant hives. Selling them at about \$15 would be profitable. Of course, the queen and bees in them would be worth nearly as much as those in Dadant hives.

Your estimate of single combs at \$1 each is too high. The foundation in them costs about 15 cents, the frame about 7 cents; the work of building them out would about double their value, say 45 cents each. Of course, if you figure only on one single hive, the cost would be greater, but we cannot figure on doing any business in dealing with single hives.

Box hives, old gums and bees in all sorts of kegs would be worth about \$3 per colony.

## Practical Queen Rearing

By FRANK C. PELLETT



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## Grading Honey for Export

The Bee Culture Laboratory has learned, through the Bureau of Foreign and Domestic Commerce, that the German import trade is greatly interested in defining grades of honey by the use of the standard honey grader described in circular 410 on U. S. standards for honey. One German importer is now visiting the United States and expects to study this grader and the United States grades.

In shipments of honeys to Germany at the present time, discrepancies are found between the grade ordered and the grade supplied, causing disputes to arise frequently between buyer in Germany and seller in America. This has resulted in German importers practically declining to buy on terms of certificate to be final as to quality. Contracts now, with few exceptions, are closed on terms of arbitration at Hamburg or Bremen in case disputes arise over the quality.

This information indicates the importance of accurate grading of honey for export, so that all of the honey in any one lot may be of uniform grade, or if of different grades, so marked that there can be no dispute. With standard color graders located both in American ports and in Germany, the chances for dispute should be minimized.

## Honeybees Educate the Family

E. C. Herrington is engineer at the pump house for the Union Pacific Railroad at the little city of Pierce, Colorado. At the home of Mr. Herrington there are twenty-five stands of bees. At Mitchell, Nebraska, he is partner owner of five hundred stands of bees, and the average yield per hive per year is 120 pounds. The bees have paid the way of three of Mr. Herrington's children through college and two more are now in college, the bees assuring all that the money is waiting. Wonderful, isn't it?

J. B. Dillon, Colorado.

## Another New Bee Book

"Beekeeping Up to Date" is the title of a little English book of 110 pages, by a lady beekeeper, A. B. Flower, F. E. S. There is a foreword by our acquaintance, W. Herrod-Hempsall. The book contains eighteen plates and text pictures, is well gotten up, and gives general management advice, recommending the use of the W. B. C. hive, which is well known and popular in England. Its main fault is in being small, with ten frames only 8 1/2 x 14 inches. On the whole, the book is well gotten up and contains good advice.

## Meetings and Events

### Maryland Summer Meet

The Maryland State Beekeepers' Association held a field meeting at the home of Mr. N. W. James, Baldwin, Maryland, on the afternoon of July 30. About thirty members were in attendance.

Mr. James discussed in particular the question of leaving ample storage during the period between honeyflows, and demonstrated his method of winter packing with a Slater's felt cover.

The next meeting of the Maryland State Beekeepers' Association will be held at Timonium during the Timonium fair. There is usually a good exhibit, as the fair association has made a liberal allowance of over a hundred dollars for prizes in various classes.

A fall meeting will be held at the government bee yard, Somerset, Md. Ernest N. Cory, Sec'y.

### The First National Honey Exposition

A big added attraction of the 1928 convention of the American Honey Producers' League in San Francisco will be the inauguration of an annual national honey exposition. This exposition will be held for the three days of the meeting in a spacious room provided by the Whitcomb Hotel, the convention headquarters. Ample provision will be made for the exhibition of honey from all parts of the nation.

The objectives of this first national honey exposition are:

1. To provide a place where national and international buyers may come and get first-hand information on the quality and types of honey offered by the various sections of the country, so that they may choose that which best fits their needs.
2. To provide a means of education in the best manner of grading and packing honey for the market.
3. To give every League member an opportunity to win an award of national merit which may be used to advantage in the advertising of his product. The variety of classes in which you may enter assures every section of the country an equal opportunity to win an award, regardless of the color of honey produced.
4. To aid in the popularizing of honey through newspaper publicity. A national exposition of this kind will naturally merit Associated Press dispatches concerning it and the awards made.

There will be three main divisions in which the national certificates of awards will be made. Individual awards will be made to League members only.

Then there is a division for the

organizations which hold membership in the League. Both county and state beekeepers' organizations which are affiliated may enter into this competition.

Then, finally, all organizations which market honey, whether they be cooperative, corporations, or private companies, will have a chance to vie with one another for national honors. These organizations do not have to be members of the League.

For further details about the first national Honey exposition, write the secretary for the September issue of the Producer, which will be sent free. January and the convention are not far off.

C. L. Corkins, Secretary,  
American Honey Producers' League,  
Laramie, Wyoming.

### West Virginia Beekeepers Meet

West Virginia bee men met at Jackson's Mill on August 11 and 12. In addition to the convention program, visitors found much of historic interest at the boyhood home of Stonewall Jackson.

T. K. Massie, president, was in the chair, and there were interesting addresses by S. A. Moats, Mr. Booth, L. E. Dills, Chester B. Hiatt, Grant Luzader, and T. K. Massie.

Officers elected for the current year are: Roy E. Wiseman, president; T. K. Massie, vice-president; L. E. Dills, secretary-treasurer. H. H. Bear, Chester B. Hiatt and Grant Luzader were elected members of the board of directors.

### Exhibits at International

The Pacific International Livestock Show will be held at Portland, Oregon, from October 29 to November 5. This has become an event of national importance. All beekeepers wishing to make an exhibit of honey, write for full particulars to S. D. Williams, 5125 Eighty-second Street S. E., Portland, Oregon.

### Ontario Convention

Announcement of the winter meeting of the Ontario Beekeepers' Association has been received. The bee men will meet at the Prince George Hotel, Toronto, November 23 and 24. It is expected that an attractive program will be arranged by Secretary Millen.

### The Demaree System Applied to the Dadant Hive

A fair solution of the large hive problem is the placing of a 5% extracting super on the bottom board, under a standard hive body. Perfect combs are necessary to the success

of this method, or at least good combs in the center of the shallow super. After a super has been given in this way it may be left there and almost ignored, a thing that cannot be done if it is between you and the bees. On the other hand, it takes a little more crowding, perhaps, to get a given amount of good honey into the brood nest for winter.

I started this practice last year when I wanted to hive some late July swarms on foundation. It worked as it will likewise work with a Demaree hive. It will cause the foundation to be drawn to the bottom in the main part of the hive, and the super becomes an established part of the brood nest, as far as I can see. I now have about thirty colonies fixed this way, and nearly all are using the lower story for brood and honey while storing surplus above as usual.

S. C. Reynolds, Wisconsin.

This is identically the same as the Demaree system, especially if you should use two supers at the bottom and put the queen below, with a queen excluder below the brood chamber. But we do not need such a method if we conduct our hives by the Dadant system. However, those who find it difficult to prevent natural swarming may adopt this method. The supers may be placed above again after the danger of swarming is passed. The present season has again convinced us that colonies managed on the Dadant system will throw so few swarms that it is not worth considering.—Editor.

### Honey and Ice Cream

We have an occasional enquiry as to the proper mixture when honey is used with ice cream. The government bulletin entitled "Honey and Its Uses in the Home," published as Farmers' Bulletin 653, gives the following:

"One quart thin cream, three-fourths cup delicately flavored honey. Mix ingredients and freeze."

Another from the same source:

"One pint milk, yolks six eggs, one cup honey, one pint cream. Heat the milk in double boiler. Beat together the honey and eggs, add the hot milk, return the mixture to the double boiler, and cook it until it thickens. Add the cream and when the mixture is cool freeze it."

### King to Oklahoma

Prof. George E. King, who has translated many articles from the German language which have appeared in this magazine, has recently resigned his position in the University of Illinois, to become assistant professor of entomology at the University of Oklahoma. Mr. King came to Illinois from the state of Utah.

# Why So Many Drones?

By Charles Hofmaster

EVERY spring the bees insist in raising such a seemingly uncalculated number of drones that the prevention of it is one of the major problems of successful beekeeping. I do not need to dwell on the ingenuity of the bees in providing drone cells in spite of all the precautions of the most vigilant beekeeper; also, the queen will climb to out-of-the-way places in the hive to deposit an egg in every available drone cell. There may be unused spaces in worker brood combs, but never an empty drone cell, during spring and early summer. When bees have their own way, as in box-hives, I have seen extreme cases when a superficial inspection gave one the impression as if nearly half of the combs were drone comb. Now, why this abundance of drones? The drone is the male of the honeybee, and it is held that an abundance of them insures the mating of the queens and thus the perpetuation of the species. This may be true enough, but that assumption should also hold with equal force in the case of the females, the queens, which it does not. It does not need great numbers of queens to insure a successful increase, which normally is, or should be, only one new swarm per season. Outside of mating, for which purpose only comparatively few of the multitudes of them are needed, the drones are popularly considered as absolute good-for-nothings. Their very name has become a by-word in several languages and is often very appropriately applied to a certain, but fortunately small, class of human beings. If mating alone would be the only excuse for their existence, we should at least expect the bees to get rid of those indolent loafers and gluttons as soon as possible after the swarming season, instead of tolerating them some months longer, till about the middle of summer.

Now we come to an attempt to answer the question heading this article on the base of some facts and observations.

There is always a practical reason for every (no matter how odd looking) phenomenon in natural life. In my opinion the bees in this case do purposely raise an abundance of drones during the period of intensive breeding for the sake of the warmth which they can furnish. Their bulk and their gluttonous habits, in combination with their excellent home-staying quality, makes them ideal heat producers under the circumstances. This is about the only vir-

tue which can be ascribed to the drones in the hive, although the joke is that one of their habits, gluttony, is the main cause of the effect. But the bees do not begrudge them their copious helpings of the stores. Stores at this time are only of secondary importance. Intensive brood rearing is the main issue and a great amount of heat is needed. When we open a hive we do not find the drones clustered among the stores, as may be expected, but we find them always evenly divided over the brood-filled combs, crawling meekly enough around. The worker bee as her name indicates, delights in work, especially field work. The presence of plenty of drones relieves them of idle clustering just to provide warmth for the brood chamber when, as in spring, there is nearly always honey in the fields. In a good honey-flow, all hands that can be spared come tumbling out, woolly youngsters and old sleek ones, regardless of the newly discovered theory of distributing labor by age limits. Now the active season of the bees can be roughly divided into two nearly equal halves. While brood rearing and store gathering, the two chief items, are going on all the time, there is a great shift in the importance of those two activities. In the first period, intensive brood rearing is the main issue and store accumulating is only of secondary importance; but at the beginning of the second period, about the middle of summer, brood rearing decreases gradually to a mere routine, while the accumulation of winter stores becomes the all-important main issue. It is significant that just about this time the drones all at once become undesirable citizens. The bees grab the unfortunates and expel them unceremoniously from the hive to their doom.

"The Moor has done his duty—the Moor may go." Oklahoma.

\* \* \*

(Remarks by the editor on the article of Mr. Charles Hofmaster)

The opinion expressed that drones are intended to keep the hive warm in the summer, and that this is the principal reason for their being hatched on such a large scale, is held by many people. But the fact that drones are reared only when the temperature is already fairly high and that, in order to produce them, the bees must expend considerable effort; the additional fact that, if a cold spell comes, about the time of swarming, and if the crop is short,

they are immediately destroyed, even when the colony needs warmth, go very far towards making their presence objectionable on that score.

In fact, we know that the colonies are generally better off, swarm less and suffer less from the heat, when they have only a few drones, instead of the thousands that they may breed. We have made it a custom to do away with drone combs and replace these with worker combs, except in the colonies from which we desire to secure reproducers.

When the bees swarm, if the queen is very prolific and fills the combs quickly with worker brood, there is but little drone comb built until the end of the first twenty-one days, because the queen follows the workers and keeps suggesting to them, in some way, that she wants more worker comb. At the end of the first twenty-one days, when bees begin to emerge from the first cells built, the queen can begin over the work of laying in those cells. The bees are then less crowded by her and set about building drone comb, fit also for storing honey and more quickly built than the worker comb.

If the queen that goes with the swarm is a very old queen, or not very prolific, or if the beekeeper has supplied some comb already built, then the bees are not hurried for worker combs and build a great deal of drone comb.

But why should nature provide such a breeding of drones? Because the queen has to take flight to mate, when she begins her life. It is necessary that she should be able to find a drone readily, and if there are only two or three hives of bees in the vicinity, many drones are needed. Some people imagine that the drones in a hive watch the queen when she is about to take flight and follow right after her. I have often watched the flight of the virgin queen and have never seen any drones apparently taking interest in the matter. I believe it takes a little while before the two sexes develop fully their organs, while on the wing, and that if there were not many drones flying about, the queen would run the risk of not finding one. Thus nature has provided an abundance of them.

But in apiaries containing fifty to one hundred hives, it is entirely superfluous to have each colony produce so many drones. We make it a rule to remove the drone comb, in spring, and replace it with worker comb in every hive that is not wanted for breeding. We have never

seen any suffering in consequence of this. We have simply been helping out nature in the work of natural selection and the survival of the fittest.

The fact that the drones keep themselves upon the combs of brood is only an evidence that they are very fond of warmth and wish to "keep their feet warm." They are so sensible to cold, so "frileux," as the French say, that they never fly out before the warm part of the day, and rarely after 5 o'clock.

And as for the queen seeking drone cells in out-of-the-way corners in which to lay drone eggs, she does not do this until she has laid a great many worker eggs and is becoming tired pressing the spermatheca, which produces workers. There is undoubtedly a certain amount of pleasure in the pressing of the spermatheca, which becomes a fatigue when too often repeated. Everybody will readily notice that an old queen is much more prone to lay drone eggs than the young queen. Evidently she becomes tired more readily than the young queen. Nature arranges

matters very well, but with little regard for the opinion of the beekeeper. The main aim in Nature is to keep up her production by a plentiful supply of new life.

Bees do not tolerate drones a long time after the crop, if it is short. But if there is plenty, they are willing to let them live. They are not looking after our welfare. We must do that ourselves. That is why we should regulate the rearing of drones by supplying the colony with the proper cells.

Mr. Hofmaster thinks that all the bees come tumbling out when there is a crop, young ones as well as old ones. He condemns the scientists who speak of distributing labor by age limits, and calls it a theory. But it is a fact, nevertheless. Anyone who has italianized a colony of common bees and has watched the actions of the bees as they emerge knows that the young bees rarely take a flight before their seventh day, and rarely become field workers before the fourteenth day. We need more observing hives and more observing beekeepers.

## Extracting the Honey Crop

By L. H. Cobb

THE main honeyflow draws to a close in midsummer. By the first of August most of the honey is ripened and ready to take off, though it can remain on the hives until late fall without injury, save that if there is a fall flow any frame not filled and sealed will be finished with fall nectar, which is generally darker than that produced by the early bloomers. Those who make it a business, aim to extract the main flow before the fall flow begins. It is from white and sweet clover, basswood or other flowers that yield a pure white nectar that is mild in flavor. The later flowers, such as mints, horehound, goldenrod, heart-ease, buckwheat, etc., yield darker honey that has the more decided flavor of the particular flower. Buckwheat is a heavy yielder of a strong, dark honey, not liked by many, but especially favored by those who have been reared where buckwheat has been grown as a grain crop. Horehound is a summer bloomer, quickly following the clovers. One year we extracted late, and until we discovered it and tested the frames, we had all the honey extracted of a rich horehound flavor about like strong horehound candy. The honey in the horehound combs was very bitter. Extracted and mixed with some of a mild flavor, it gave a honey valuable for medicine, we found, and many liked the flavor for table use. We

never had any difficulty selling all our bees produced. If we will watch the horehound bloom and extract all the sealed honey when it begins and then again after it is over, we can keep it well separated and there is likely to be enough other in the frames not sealed when we extracted the first time, and sealed with the horehound from the later flow while it has been ripening, to make it mild enough to use.

Those who have but small apiaries can often rent an extractor, and where several small apiaries are close together the extractor can be owned together. Extracting never needs to be done at any particular time. Even if we wish to keep the flows separate, we can remove the frames and store in a warm, dry place in the supers, being sure there is no chance for mice or bugs to get inside, and then do all the extracting at one time. Honey is one of the easiest products to keep, dampness alone having much effect on it. After extracting, if put into glass fruit jars it can be kept anywhere, but it will granulate if exposed to severe freezing. However, it is easily melted again by setting jars in hot water. As fruit jars are ideal for marketing the honey locally, it saves time and trouble to jar up just as it is extracted.

The beekeeper with tons of honey to extract has his steam or elec-

trically heated knife for uncapping, his power extractor, his capping melter to prepare the wax for sale, and every device he can provide for getting the honey ready with the minimum of labor, but we had to content ourselves with a simple uncapping knife, a hand-turned, two-frame extractor, and a home-made sun wax extractor, but we got along nicely. When two of us uncapped, one used a sharp butcher knife with not much difference in results.

When extracting, the important point is to keep as little honey exposed as possible, for it excites the bees and is likely to start robbing. The work should be done in a screened room and openings made near the tops of door and windows to allow the escape of bees. It is seldom necessary to use bee escapes, as bees are not likely to find the openings to get in.

We always put the empty frames in their supers and pile one over the other on a bottom board, with the entrance closed so only one or two bees could go in and out at once. A cover is placed on top. The bees will clean up all the honey the extractor does not remove.

The cappings shaved off of the honey to permit the extractor to throw it out, are placed in a strainer to drain out all the honey. A warm room hastens the draining. If put in a coarse muslin bag, the cappings can be crushed and wrung and most of the honey forced out quickly.

A sun wax melter is easily made and is best if there is any old comb to be melted. Cappings from new comb contain little refuse, but old comb will have old cocoons, propolis, and such stuff, that does no harm to the honey, but is best removed by the sun extractor. This is a glass-covered box with a shelf of tin sloping toward a square pan that is to catch the honey and wax that run off while the refuse remains on the tin shelf when exposed to the sun's heat through the glass. This is useful to melt granulated honey also, removing the tin shelf and setting the glass jars inside.

Cappings from fresh new comb may be melted by placing in a vessel and setting in water hot enough to melt the wax. The honey and dregs settle to the bottom and the wax hardens on top as it cools. It does the same thing in the pan of the sun extractor. One year we simply dumped all the cappings into a boiler of clean hot water, rinsed all the knives and the extractor in clean hot water also, and when we removed the hardened wax we strained the sweet honey-filled water and added it to the vinegar, and it made a good vinegar in a few months.

Kansas.

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## What About Ventilation?

By W. M. Egan

As was surmised when I wrote "Best Big Hive," page 390, 1925, there is division among beekeepers about wintering bees and the principles involved. It was expected that a hornet's nest would be stirred up, but I began to think it had failed to mature until I read Mr. Carl L. Wilson's article, "Ventilation Pro and Con," page 583, American Bee Journal, December, 1925, issue, which puts the proposition fairly before the beekeepers in a manly way, and I think he has considerable backing from a large proportion of beekeepers in part at least.

If there is a new philosophy of ventilation which warrants the stand taken by Mr. Wilson and his colleagues, and that new philosophy can be sustained as true, then we old fogies with the old philosophy and management should take a back seat and start all over again, for we are working on the wrong principles. But if the reverse be true and the old philosophy of ventilation holds good, then we know the principles on which to base our management.

Some of the questions involved, growing out of Mr. Wilson's article, are the following:

1. Is hot air or warm air necessarily foul air? Is the temperature any evidence of its being foul? Is cold air always pure air?

2. How does air become foul? What is taken out of it and what is put into it by the bees? How is it purified?

3. Does carbon dioxide, CO<sub>2</sub>, carbonic acid gas, go up or down? Does it combine with the warm air and ascend, or does it descend and combine with the cold air at the bottom of the hive?

4. Do bees of their own volition seek the open for pure air, or the confined spaces for warmth?

5. Should we give the bees more open freedom of large spaces above them in the hive with top ventilation, or should we allow the bees to condense into the least amount of space they desire and help them do it right?

Some of these questions need ventilating, for we hardly know where we are at. We don't understand alike and cannot come to "a unity of the faith" as to the requirements of the bees without discussion. I know it takes time for some things to soak into us so thoroughly as to get the full benefit.

Mr. Wilson shows the difference in views among beekeepers in his first paragraph, page 583, American Bee Journal. (Please read it.) I think he has much backing, for what

he says in that paragraph, among beekeepers, although his arguments do not seem to support these statements very thoroughly in the balance of the article.

Bees having blood is a new one on me, but that heat is produced by the honey consumed and the oxygen of the air is true. It is also true that the warm air goes to the hive top and circulates and, mixing with fresh air at the entrance, repurifies itself. The carbon dioxide, CO<sub>2</sub>, carbonic acid gas, exhaled by the bees is much heavier than air and goes to the bottom of the hive and out at the entrance. It is never fatal to the bees unless the entrance becomes closed up, or too small for it to be carried out fast enough. It does not go out at the top through absorbents, but moisture does.

Mr. Wilson's experience with entrance ventilation agrees with mine, but when he says "the bees are in a blanket of foul air; better an inlet for fresh air at the bottom and an outlet for foul air at the top," I don't agree with him. In fact it is the worst thing we can do.

The textbooks show that modern systems of ventilation of houses are based on warm air driven by fan, air being admitted at the top of the room and carried out by a flue from the bottom. The cold and impure air is carried out in this way, especially the carbonic acid gas. A draft through a beehive from bottom to cover is the worst thing we can have. An open end frame of comb is a poor division board, but a closed end frame makes a good one and prevents draughts through the hive.

As the bees in a tree, having their natural instinct, build their combs tight at the top and sides, with pop holes interspersed for ventilation and for passages to their stores, is that anything to go by, or are the bees mistaken?

It seems the bees are most troubled with hot air in the summer, and yet they have a pretty good capacity for taking care of it. It is not considered foul air because it is summer, although the air is hot. The bees ought not to be bothered with extra heat in winter if they can stand the summer heat. They certainly do not need large open spaces in the hive in winter time. I have never known such an argument to be used before in my day. Still this is the meaning of the food-chamber idea in part.

If a food-chamber added to a hive succeeds it is not because of the amount of extra space added. If the warm air goes up into the food-chamber and warms it all up so the bees can move up into its warmth, especially when properly protected or packed outside, it would not matter

how much space was left below them if the conditions were right above. That may account for the success of the plan.

If that be true, I do not think that is the best plan to help the bees most. The food-chamber would be solid honey, no empty cells for bees to rest in. The cluster would be divided and right in the most draughty place between the top bars and the bottom bars of the two chambers. If their food was supplied in one hive body without this mix-up, it would be much better for the bees.

I think I am supported in these ideas by a large class of very fine beekeepers. Read "The A, B, C and X, Y, Z of Beekeeping" on wintering; that tells the story of years of experience. Our editor puts the matter in a nutshell in commenting on this very article, page 595, when he says: "We want the top of the brood chamber closed with a cushion. This lets out the moisture, and the FOUL air, cooled, escapes downward, at the end of the combs. But a division board, closed at the ends, prevents too great a circulation of air through the hive. Our greatest success in wintering has been secured in this manner." Utah.

### Have a Little Honey

Craig Rosborough, horticultural agent of the St. Louis-Southwestern Railway Lines, sends us the following song, which was sung at a luncheon at the National School for Commercial and Trade Organization Secretaries. The song made quite a hit, and Roseborough suggests that it be passed along to the various luncheon clubs with the hope that it may find a permanent place among the regular songs of such clubs. At the particular luncheon which Mr. Rosborough attended, honey was served along with hot biscuits and butter, a popular combination:

(Tune: "Let Me Call You Sweetheart")

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Every place you go—  
The slogan of our salesmen,  
As you well might know.  
The honey they refer to  
Is the kind you eat,  
Not the blonde or brunette  
That you'd like to meet.

Have a little honey  
Every place you go.  
Eat it on hot biscuits  
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Our bees are getting lazy  
'Cause their work is slow.  
Have a little honey  
Every place you go.



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## Price Cutting Hits Home Hardest

By William H. Wolford

IT has been stated in this journal, doubtless beyond criticism, that among beekeepers exists a greater percentage of price-cutters than among the ranks of any other country produce growers. In fact, both wholesale and retail underselling have been discussed, at intervals, in the columns of our journals for years. The price-cutter seems ever with us. Voluble and religious solicitude for his reform, regretfully, appears either to have missed the mark entirely or to have been earmarked so conspicuously with stated effects of the undesirable practice on others than the price slasher himself that the latter has responded little more than to shake off a misinterpreted slur, look askance upon the preachers, and conclude they would talk him out of business entirely if they could.

There is a psychological complex—in literature, you know, one must use the going names of things—in our own little beekeeping sphere, that seems to have defied the years and explanation. Call it a frame of mind, if you will; or just suspicion. Its incipency is with the budding beekeeper; somehow, it comes along with those odd-lots of bees picked up, the country over. Yet it may be detected lurking in the minds of men old enough and mature enough to shame them utterly. Just why it is insisted commercial bee men stand unitedly against the small man, whether he be beginner or veteran, side-liner or hobbyist, is irrelative to the present discourse.

An edge of this psychological complex, however, found acceptance with scattered price-cutters. Oft-repeated appeals in our journals for consistent maintenance of price, made solely in the interest of honey producers en masse, nevertheless are looked upon by the calloused free-lance as high-hat nagging. The interpretation is fallacious and grossly wrong. But it sticks.

A new persuasion must be launched against this widespread practice of market slashing. The price-cutter has been "preached at" to little or no avail; he has been pleaded with; undoubtedly, in rare and inexcusable instances, he has been threatened. He has been told, since he became a topic in our literature, that he was a bad, bad child; that he was selfishly inconsiderate of a commendable code of business ethics; that he hurt the honey market and his neighbor beekeepers' pocketbooks.

But is the average price-cutter

interested in these things? Has the bad child true remorse for his wrongdoing? Has the cold, steel-minded gambler personal regard for ethical teaching of the church and Sunday-school? Has the speculator a cringing conscience when, through unnecessary intervention, wheat goes up two cents and drops into his pockets a margin raked in from widows as well as wine merchants? But when the bad child must remain in from play; when the gambler is tricked at his own game; when the speculator awakens suddenly to an unexpected loss—then he sits bolt upright, either astounded or wincing with a wry face.

The price-cutter's game is not without its deceitful surprise. The beekeeper who owns an investment in equipment of management, and who is compelled to contribute much labor a year to his bees, cannot give away his profits and retain them. Certainly, one who professes to make a living wage with his bees, who habitually cuts the market a cent or more, and who takes time to figure such practice to a logical conclusion, will give up in horror if he has intelligence and other than a philanthropic motive in the business.

For the price-cutter cuts nobody harder than himself. Assuming the market returns a 25 per cent profit on total production costs of honey, a 5 per cent cut in sales prices reduces net profits one-quarter; a 10 per cent cut in sales prices reduces net profits one-half, and a 20 per cent cut in sales price—which, with honey at 10 cents per pound, would be equivalent to selling at 8—would return, theoretically, absolutely no profit at all. With a honey market at 10 cents per pound, the producer who cuts the market a cent on an entire crop must produce and sell at the same cut figure exactly double the amount of honey as the beekeeper who maintains the market, to make an equal profit showing.

Consider a specific instance. Let us set down a computation on a ton of honey. We must assume, of course, a mutual production cost; and we must assume a market. Two hundred dollars a ton wholesale, for the latter, is neither unreasonable nor rare. The round number facilitates calculation. As for production cost, we know it varies; mounts, very likely, as one journeys eastward, or possibly as one travels either eastward or westward from one or two areas in the Middle-West and Northwest. We know it responds to individuality and to individual systems of management. However, for pur-

pose of this discussion, we will arrive at 8 cents as combined production and container costs. On a \$200 a ton market, with production costs at 8 cents, a legitimate profit margin of 25 per cent is returned on production costs.

2,000 pounds clover honey at 8 cts. lb. production cost gives

\$160.00 production cost per ton.

Both the man who receives and the man who cuts the market have these figures on their balance sheets. Henceforth the figures discriminate.

#### Market Maintained

\$200.00 market price per ton, less 160.00 product'n cost per ton leaves

\$ 40.00 per ton profit.

#### Market Cut 10 Per Cent

Ten per cent thrown off for ready sales, in the philosophy of the price-cutter, seems like little or nothing about which to haggle. "What's a cent?" they say. Some even commend their business judgment, feeling elated as their honey moves out while established producers, attempting to maintain a market and realize a living wage, report movement slow or sluggish. Here is what the enthusiastic price-slasher smiles over:

\$200.00 market price per ton, less 20.00 (10 per cent cut), leaves

\$180.00 per ton gross receipts.

Deducting \$160.00 production cost per ton leaves \$20.00 per ton profit.

The price-cutter cannot be made to feel sorrow for the orthodox commercial man. Such approach is insensible to the real nature of mankind. Whether or not you are divorced of Darwinism, still must you admit man's response to animalistic greed of stomach, possessive instinct, and aggressive dominance. Young cocks in the pen feel no sorrow for the downed one. But the strutting champion displays mighty pride. The price-cutter can see no reason for altering his ways in response to an argument that leaves himself no better off than formerly. But let him get the idea that he, himself, is the downed one, that the way to a victorious flapping of wings in beedom lies partly in getting the market figure, and there is great reason to believe the price-cutting habit gradually will lose itself in the better and more profitable ways of trade.

#### Honey Candy

During the Wisconsin State Fair a Milwaukee paper had a picture on the front page, of the kiddies being served with honey candy at the fair. With the picture is a nice little story about the merits of candy made from honey.



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## A Worthy Enterprise

Arrangements have recently been made for the publication of "Honey Plants of Iowa" by Dr. L. H. Pammel and C. M. King, of the botany department of Iowa State College of Agriculture.

This work, which when complete will contain about 800 pages, will be issued in three parts at cost price, which will be about \$2.50 per part, or \$7.50 for the complete work.

No work of like nature has ever been attempted. It will be useful not only for its full account of Iowa honey plants, but to Iowans of special value for the descriptions of native trees, shrubs and plants.

Much material will be included which is useful to students of nectar secretion, plant pollination, and relationship of insects to plants.

Since it is very expensive to publish such a voluminous work, it is desired to secure advance subscriptions in order to determine the probable demand. Dr. Pammel has spent many years in the preparation of this work and deserves the support of every student in this field. Those who wish to subscribe for copies should address

Dr. L. H. Pammel,  
428 Ash Ave., Ames, Iowa.

## Color Standard for Comb Honey

The United States Department of Agriculture has recently issued a chart in color, showing the color standards for grading comb honey. A copy of this chart hung in the room where grading is in progress should be very helpful in making proper decisions.

Eight sections of comb honey are shown. Under each is a detailed explanation which will enable the operator to determine the proper grading as affected by propolis stain or color of the honey.

Every beekeeper who produces comb honey for sale should secure a copy of this chart. A limited supply is to be had from James I. Hambleton, Bureau of Entomology, Washington, D. C., on request. When Hambleton's supply which will be distributed free is exhausted, copies may still be secured from the superintendent of documents at Washington for 15 cents.

## Michigan Appropriation

The state of Michigan has appropriated \$39,300 for bee inspection for the fiscal year 1927-28. In addition, the counties cooperating have increased this figure to a total of \$45,000. With such a sum available an intensive campaign is under way, directed by Inspector Krebs.

# Crop and Market Report

Compiled by M. G. Dadant

For our October crop and market report, we asked the following questions of our reporters:

1. How is the total crop?
2. How is honey moving?
3. Are prices above or below a year ago?
4. Will the present crop move at last year's prices or better?

## TOTAL CROP

The Central West seems to be the only section of the country which is reporting unanimously a much better crop than last year, and this section is followed by the plains area, which is almost as good.

Outside of this, there are only a few scattered states which report as much as last year, and two or three Canadian provinces.

Those states reporting as much or more honey than last year, with percentages, are as follows: Maine, 100%; Maryland, 100%; Tennessee, 100%; Ohio, 120%; Indiana, 150%; Illinois, 170%; Iowa, 120%; Missouri, 150%; Wisconsin, 120%; Minnesota, 120%; North Dakota, 140%; South Dakota, 100%; Nebraska, 110%; Kansas, 120%; Oklahoma, 100%; New Mexico, 100%; Arizona, 100%; Ontario, 120%; Saskatchewan, 120%; Manitoba, 120%.

This large crop in the western states and plains area is much more than offset, however, by a correspondingly small crop in other sections of the country.

For instance, the New England states, New York, Pennsylvania, as well as New Jersey, will probably have only about 80 per cent of a crop in total.

In the southeast states the whole area probably will not average over 50 per cent of an average crop.

In Texas the per cent of last year's crop will not run over 75, and Louisiana probably not over 35 or 40.

Going into the intermountain territory, Colorado probably will have as a good a crop as any of the intermountain states, which will likely run not over 70 per cent of last year's. Utah is about the same as Colorado. Wyoming reports a very discouraging yield, probably not over 25 or 30 per cent of last year, and Idaho is the same. Montana will have 50 to 60 per cent of 1927, and Oregon and Washington about 50 per cent.

Throughout the whole of California there will not be over a third of a crop; in fact, the yield is so small that the honey is quickly cleaning up at much better prices than last year.

Ontario had a short crop last year and will have more than it did in 1927. The crop has been unusually good in Saskatchewan and Manitoba, and normal in British Columbia.

On the whole, undoubtedly the total crop for the country cannot reach the total of last year, and has the added advantage that the heavier crops are in states with the heavier population and amongst smaller producers, so there will not be the volume reaching the general markets.

## HONEY MOVEMENT

Generally the movement of honey has been exceptionally good for this season of the year. We have had some exceedingly hot weather, but, in spite of it, movement has gone along very well, probably because of the fact that the fruit crop has been very short.

In fact, we are not hesitant in saying that honey is moving very much more freely than it did at this time last year, and would move at good prices were it not for the fact that there is the usual number of beekeepers who are panic stricken by a large yield and are putting the honey on the market at any price. The big difference, however, is that this honey is dumped on the small markets in a local way and hurting these markets, but the percentage that is going into the big markets at a very low price is relatively small. We cannot see anything but rosy prospects ahead for the fall and winter months, partly because of the fact that there is a short crop in the big producing areas and partly because of the extremely small fruit yield throughout the East and Central West at least, and a less sub-normal crop in the big apple areas.

Large numbers of families are having to resort to syrup, honey, etc., to take the place of usual preserves, canned fruits and jellies.

With a return of cooler weather, undoubtedly the demand will pick up very much more rapidly and those sections now reporting slow sales will come into the good sale areas.

As usual, a good crop means good demand; at least this is the case in central western territories which have had a very heavy crop, where the demand seems to be unusually active. Honey crops have a way of advertising themselves in a well settled area, but unfortunately they are accompanied by the cut-price man, who does more harm to the market than does the heavy yield.

## PRICE RANGE

We do not believe that prices are starting any higher this year than last. In fact, a number of sections state that the price is below beginning price last year, and applies especially to the central western states, where the crop has been heavy, to Ontario, which is under the same condition, as well as in some scattering states, most especially Texas. There is, however, one very encouraging thing, and that is that the prospects are for a stiffening of honey prices rather than a reduction. In fact, although last year at this time we advised through our crop page to move the honey at present prices as soon as possible, it would appear that it would be more desirable now to hold honey until a little later on rather than sacrifice below the prices ruling last fall.

Thanks to the activity of our Department of Commerce and our own Division of Bee Culture at Washington, D. C., there has developed quite an extensive market for American honey in foreign countries, and this demand is continuing unabated this fall. In fact, we know of offers being made on a basis of about nine cents f. o. b. New York City for foreign shipments. This is, of course, for best white honey.

There is no tendency on the part of the western producer to sell at a lower price than was gotten last year, unless such a producer is entirely uninformed. In fact, although some of the western producers were starting as low as 6½ and 7 cents, a month ago, these same producers are now figuring that a price of 7½ to 8 cents would be more nearly correct.

## HONEY MOVEMENT

As stated previously, the movement of honey so far, we believe, generally has been better than in 1927 at the same date. We have had as a contrast with last year some very hot and oppressive weather which should tend to ruin honey sales, whereas last year started in cool and has been a good honey selling season.

With the return of cool weather, we believe that the honey sales will mount rapidly; in fact, it is our opinion that the honey movement is much better than last year in spite of the heat.

All in all, considering the situation generally, it looks very encouraging for the ready disposition of the 1927 crop of honey.

Practically all the 1926 crop was sold, even though at low prices, before the 1927 crop was ready, and our present crop is not at all phenomenal. The large production areas have had short crops and all sections are going through more or less of a fruit famine, all of which points would help in the tendency to increase the demand for honey and stiffen the price.

The one fly in the ointment is the fact that the price cutter is still with us. He is of two different types. The first type is the one who does not know anything about the market or about the price at which honey should sell. Unfortunately, even in the big western producing states there are producers who even yet are selling as low as 6½ cents, or even 6 cents, for good white honey just because they do not know any better or are uninformed.

The second type of price cutter is the smaller producer in the central and eastern states who has gotten a good crop this year with no idea whatever of cost and will sell for whatever he can get, figuring himself just that much gained for whatever the crop sells.

## CLASSIFIED DEPARTMENT

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 15th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

As a measure of protection to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisements of used beekeeping equipment or of bees on combs must be accompanied by a guarantee that the material is free from disease or be accompanied either by a certificate of inspection from an authorized inspector or agreement made to furnish such certificate at the time of sale.

## BEES AND QUEENS

**QUEENS AND PACKAGE BEES**—  
Jasper Knight, Hayneville, Ala.

**LOOK!**—Two of our northern bred Italian queens for our regular price of one, \$1.00.  
Benson Bee Line Co., Galena, Ill., R. 2.

**KANSAS BRIGHT ITALIAN QUEENS**—  
A. M. Hunt's strain. One untested, \$1.00; six, \$5.00; dozen, \$10.00. Tested, \$1.50.  
C. W. Ward, R. 1, LeRoy, Kans.

**TESTED** good quality three-band queens \$1.00 each during fall and winter months. I sell queens every month of the year.  
D. W. Howell, Shellman, Ga.

**THRIFTY CAUCASIANS**—Booking orders for three-frame nuclei, also queens for May delivery. Yard inspected regularly for protection of diseases.  
Peter Schaffhauser, Havelock, N. C.

**PACKAGE BEES**—For 1928. Write for prices. Special price to first fifty who order five or more packages.  
J. J. Scott, Crowville, La.

**FOR SALE**—Breeding queens tested for northern honey production. The kind that get the large yields, \$8.00 each.  
Victor Apiaries, Chaffee, N. D.

**PACKAGE BEES**, nuclei and queens, April May and June delivery. Pure Italian stock. All necessary papers with package bees to Canada. Write for prices and guarantee. They will please you. Taylor Apiaries, Lock Box, Luverne, Ala.

**CAUCASIAN QUEENS** from imported stock. Select untested \$1.50 each for balance of season. Now booking orders for 1928 delivery.  
Tillery Bros.,  
Greenville Ala., Rt. 6.

**AMERICAN BEAUTY** Italian bees and queens. Tupelo Apiaries, J. L. Morgan, Prop., Apalachicola, Fla.

**"SHE-SUITS-ME" QUEENS**—Three-banded stock. None better. Untested queens from May 15 to June 15, \$2.00; after June 15, \$1.50. Introduction guaranteed.  
Allen Latham, Norwichtown, Conn.

**HIGHEST grade Italian queens**—Tested, \$1.50; untested, 75 cents. Package bees, one pound, \$1.50; two pounds, \$2.50; three pounds, \$3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed.  
T. L. Davis, Buffalo, Leon Co., Texas.

**TRY** our high class queens and get the honey. We sell only the best selected Italians, guarantee safe arrival and complete satisfaction in every way. Our queens are personally reared and we want you to try them. Prices are \$1.00 each; 6 for \$5.50; 25 at 80c each, and 50 or more 75c each.  
Salida Apiaries,  
T. L. Nicolayson, Prop.  
Salida, Calif.

**GOLDEN THREE-BANDED** and Carniolan queens. Tested, \$1.00; untested, 75c each. Bees in 1-pound package, \$1.50; 2 pounds, \$2.50; 3 pounds, \$3.25. Safe delivery guaranteed. C. B. Bankston,  
Box 65, Buffalo, Leon Co., Texas.

**PACKAGE bees and queens.** Charles Wallace, Box 35, R. 1, Glenn, Cal.

**PURE ITALIAN QUEENS**—The kind that pleases. Prices attractive. Guaranteed satisfaction or money back. Write  
Roy Weaver, Navasota, Texas.

**PETERMAN'S** select Italian queens from sunny California: 1, \$1.00; 6, \$5.50; 12, \$10.00; 25, \$20.00; 100, \$75.00. Safe delivery and entire satisfaction guaranteed.  
H. Peterman, Lathrop, Cal.

**LEATHER COLORED ITALIAN QUEENS**—  
\$2.00; after June 1, \$1.00. Tested, \$2.00.  
A. W. Yates,  
15 Chapman St., Hartford, Conn.

## FOR SALE

**FOR SALE**—700 ten-frame colonies bees with shallow super equipment in eleven yards located in sweet clover belt. Fine for early package bees and main honey crop later in season. No disease. E. Eggeman, Allenville, Ala., Marengo County.

**BEES FOR SALE**—600 strong colonies, free from disease, in good location, with eight-frame power extracting outfit and all standard comb and extracting equipment. Good reasons for selling.  
Harvey E. Whiteacre, Saratoga, Wyo.

**FOR SALE**—160 colonies Italians, cheap; also 25 division board feeders, 20c each.  
Edw. Klein, Waukegan, Ill.

**FIFTY STANDARD** bee hives, new ones, with frames, stands and winter covers, for sale. Low price. Niles G. Bjornram, 247 E. 33rd St., New York City, N. Y.

**FOR SALE**—My splendid apiary business, consisting of 400 colonies of Italian bees, with equipment for 500 colonies. Modern equipment. State inspected and in good locations. O. W. Bedell, Earlville, N. Y.

**FOR SALE**—100 gallons Hutzelman's solution for treating American foulbrood, at 75 cents per gallon, put up in 50-gallon drums; has been used one season. Also four treating tanks holding 100 frames each, at \$15.00 per tank.  
Henry Eggers, Birchwood, Wis.

**FOR SALE**—We are constantly accumulating bee supplies, slightly shopworn, odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it.  
Dadant & Sons, Hamilton, Illinois.

**FOX AND FUR FARMING**—The fastest growing and the most profitable industry in the world. Our monthly publication, seven years old, prints all the news. Sample copy 25c. Subscription \$2.00 per year in United States, \$2.25 in Canada.  
American Fox and Fur Farmer,  
St. Peter, Minn.

## HONEY AND BEESWAX

**I HAVE** 125 cases Arizona amber honey, mostly mesquite. Somebody make me bid for same f. o. b. Benson, Arizona.  
M. J. V. Johnson.

**FOR SALE**—None better clover honey. Sample free.  
M. W. Thompson, Toronto, S. D.

**FOR SALE**—New crop Michigan white clover honey, new 60-lb. cans, pails or glass.  
W. S. Wiggins, Muir, Michigan.

**FOR SALE**—Buckwheat honey in new cans, \$8.50 case lots. Edward Hogan, Washington St., Canandaigua, N. Y.

**FOR SALE**—Fancy extracted white clover honey in new 60-lb. cans \$6.00 per single can; \$11.25 for two 60-lb. cans in case. Sample 10 cents. E. J. Baxter, Nauvoo, Ill.

**CLOVER HONEY**—For sale in 5, 10 and 60-lb. cans. Write for prices.  
Henry Price, Elizabeth, Ill.

**FOR SALE**—No. 1 white comb, \$4.50 per case, 24 sections to case, six cases to carrier. Clover extracted, 10c pound; dark, 7c. Two 60-lb. cans to case.  
H. G. Quirin, Bellevue, Ohio.

**EXTRACTED HONEY**—Extra fancy white clover, 60-lbs. 10c pound; six 10-lb. pails, \$7.50; twelve 5-lb. pails, \$8.00.  
Ray Axman, Amherst, Neb.

**HONEY**—In 60-lb. cans. Extra white, white clover, 10c; light amber, 8½c; buckwheat, 7c.  
F. J. Smith, Castalia, Ohio., R. 1.

**CLOVER**, also buckwheat and clover blend, in pails or cans. Samples free.  
Henry Stewart, Prophetstown, Ill.

**FOR SALE**—15,000 pounds of the choicest clover honey we have ever produced, all in new 60-lb. cans and cases. Write for sample and price.  
Valley View Apiaries, Savanna, Ill.

**FOR SALE**—Sweet clover comb honey.  
L. Madsen, Gardner, Ill.

**NEW CROP** clover extracted honey in new 60-lb. cans and cases. Sample 15c. State quantity desired.  
L. A. Thrall, Anthon, Iowa.

**CHOICE** clover honey, comb and extracted. Write for quotations. M. Larson & Son, Box 144, Gardner, Ill.

**FOR SALE**—700 cases white clover comb honey. New crop. Charles Guhl,  
R. 7, Napoleon, Ohio.

**FOR SALE**—White clover honey in new 60-lb. cans, cased single. Prices on request. John Olson, Davis, Ill.

**FOR SALE**—Fancy white clover honey in new 60-lb. cans, 10c per pound; twelve 5-lb. pails, \$7.75. Chunk honey, twelve 5-lb. pails, \$9.00. Discount on large lots. Sample 15c.  
Joseph H. Hoechn, Ottoville, Ohio.

**FOR SALE**—Fine quality clover honey in new 60-lb. cans.  
Sundberg Bros., Fergus Falls, Minn.

**WHITE CLOVER** honey in 60-lb. cans, two cans to case, 9c per pound. Sample 15c.  
Sylvester Legat, R. 1, Box 11-A,  
Spring Valley, Ill.

**NORTHERN** white honey in new cans, clarified, no foam. Case, ton or carload. Sample 10c.  
George Seastream, Moorhead, Minn.

**FOR SALE**—Water white sweet clover honey, North Dakota's best. Packed as desired. Victor Apiaries, Chaffee, N. D.

**FOR SALE**—Bee-Dell extracted honey in new 60-lb. cans. We solicit your business. Bee-Dell Apiaries, Earlville, N. Y.

**FOR SALE**—40,000 pounds A-No. 1 Michigan white clover honey. Prices on request. Sample 10c.  
Ralph E. Blackman,  
R. 4, Portland, Mich.

**FOR SALE**—White clover honey in sixty-pound cans. Strictly No. 1 grade.  
A. G. Kuersten, Burlington, Iowa.

**NEW** crop white clover honey, not extracted until thoroughly ripe. Put up in sixties. Two to the case.  
Frank Coverdale, Maquoketa, Iowa.

**FOR SALE**—New crop fine white clover in 60-lb. cans.  
Arnold Panning, Okolona, Ohio.

**FOR SALE**—Large stock first-class white clover, sweet clover, basawood, light amber and buckwheat extracted honey. Producers who need more, dealers and solicitors should write us about their wants.  
A. I. Root Co. of Chicago,  
224 W. Huron St., Chicago, Ill.

**WHITE CLOVER HONEY**—Extracted, comb and chunk honey. Prices on request. Sample 15c.  
F. W. Summerfield, Waterville, O.

**FOR SALE**—New crop white clover comb honey. Standard sections. Prices on request.  
C. Holm, Genoa, Ill.

**FOR SALE**—Extra fancy white clover honey in new 60-lb. cans. Also comb honey, some of the best you ever bought. Write for prices.  
Martin Carsmoe, Ruthven, Iowa.

WINKLER'S white clover honey in new 60-pound cans at 10c pound. Reduced price on large lots. Sample 20c.

Winkler Honey Co., Joliet, Ill.

EXTRACTED and comb wanted. Advise us what can ship and price wanted, sending samples of extracted. Comb must be 4 1/4 sq. by 1 1/2 beeway sections. Prefer glass front cases. State how comb packed and grading, etc. Arthur H. Hoffman Co., Richmond Hill, N. Y.

EXTRACTED HONEY—Extra fancy, white clover; 60 lb., 13c pound; six 10-lb. pails, \$9.00; twelve 5-lb. pails, \$9.60.

Kalona Honey Co., Kalona, Iowa.

MOORE'S fancy clover extracted honey; thick, well ripened, delicious flavor. Prices quoted on application.

J. P. Moore, Morgan, Ky.

EXTRACTED clover honey, fully hive ripened, from famous Lake States limestone clover belt. In sixties, five- and ten-pound pails. Prices on request. Sample 15c. James B. Gray,

Sylvandale Apiaries, Sylvania, O.

COMB and extracted honey, finest quality. Write for prices, stating quantity. Sample extracted 15c.

Arthur Beals, Oto, Iowa.

FOR SALE—White clover honey in 60-lb. cans. None finer. Satisfaction guaranteed.

J. F. Moore, Tiffin, Ohio.

HONEY—Fancy and extra fancy comb and extracted. Irvin A. Stoller, Latty, Ohio.

HONEY WANTED—Carload of white extracted every month.

L. D. Taylor, Chandler, Okla.

WANTED—A car or less quantity of white honey in sixty-pound cans. Mail sample and quote lowest cash price for same; also send for my cut price circular on cans and pails for honey containers.

A. W. Smith, Birmingham, Mich.

NEW white orange blossom honey in 60-lb. tins, 12c per pound.

Leutzinger & Lane,  
76 Clay St., San Francisco, Cal.

GET MY PRICES on clover honey. Any quantity. C. S. Engle, 1327, 23rd St., Sioux City, Iowa.

EXCELLENT quality straight white clover honey in new 60's at 10c per pound. Sample. Ohmert & Son, Dubuque, Iowa.

FANCY CLOVER EXTRACTED—In new 60's, by the case or carload.

J. N. Harris, St. Louis, Mich.

EXTRACTED TUPELO—The greatest of all honeys; never granulates, mild, deliciously flavored. Sample 20c of barrel to car lots. Parcel post package delivered, half gallon, \$1.85; one gallon, \$3.55.

M. L. Nisbet & Bro., Bainbridge, Ga.

FOR SALE—Fine clover honey in new 60's. Free of disease. Twelve dollars per case.

Newman I. Lyle, Sheldon, Iowa.

FANCY white tupelo extracted and bulk comb, packed in five-pound tin.

J. L. Morgan, Tupelo Apiaries,  
Apalachicola, Fla.

FOR SALE—White sweet clover extracted honey and fancy white comb in shallow frames. Quality goods that will please your trade. Write for prices.

The Colorado Honey Producers' Ass'n,  
Denver, Colo.

CLOVER and basswood honey, blended by the bees. Color white; body fine. Extracted, sections and shallow frame comb. Sample 15c.

W. A. Jenkins, Rockport, Mo.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Co.,  
217 Broadway, New York.

HONEY FOR SALE—In 60-lb. tins. White clover at 12c lb.; white sage at 12c lb.; white orange at 13c lb.; extra L. A. sage at 11c lb. Hoffman & Hauck, Inc.,  
Ozone Park, New York.

FOR SALE—Choice clover extracted honey packed in new 60-pound cans and cases.

J. D. Beals, Dwight, N. Dak.

SHALLOW frame white comb honey and white extracted honey.

The Colorado Honey Prod. Ass'n,  
Denver, Colo.

WHITE clover comb honey. Eight case carriers, \$4.50 per case.

W. Ritter, Genoa, Ill.

HONEY WANTED—Several thousand cases white clover comb honey, size 4 1/4 x 4 1/4 x 1 1/2. Must be white and strictly graded, fancy and No. 1. No other grade wanted; also extracted. Send sample, give quantity and price wanted. We pay cash.

A. L. Haenseroth,  
4161 Lincoln Ave., Chicago, Ill.

FOR SALE—Our own crop amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request.

Dadant & Sons, Hamilton, Ill.

## Classified Ads Pull

"Possibly you recall the little ad I put in your March issue, of two honey extractors for sale. I took those over at a forced sale (having no knowledge of bees).

Supposed I would have to list them at least three or four times, BUT I DID NOT HAVE ENOUGH EXTRACTORS FOR ONE ADV. Think I could have sold at least a dozen.

I shipped one to Painted Post, N. Y., and one to Ozan, Ark.

I felt it my duty to compliment you on the success of your advertising."

C. A. Dye, Belle Valley, Ohio.

If you have anything to sell or trade  
use our classified columns

### SUPPLIES

"BEEWARE" and Dadant's Wired Foundation for the Northwest. Catalog prices. F. O. B. Fromberg, Montana. Beeswax wanted. Write for prices.

B. F. Smith, Jr., Fromberg, Mont.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly.

The Colorado Honey Producers' Ass'n,  
Denver, Colo.

FOR SALE—Good second-hand 60-lb. cans, two cans to a case, boxed. We have large stocks of these on hand. Please write for prices if interested. We are offering only good cans and good cases.

C. H. W. Weber & Co., Cincinnati, O.

### MISCELLANEOUS

TO TRADE—For small place or bees and equipment, equity in 95-acre Illinois stock farm. Hal McCreight, Plymouth, Ill.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.

American Bee Journal, Hamilton, Ill.

LABELS, PRINTING, ENGRAVING—Finest work, lowest prices. Catalog free. Write Traders Printing Co., Springfield, Mo.

WESTERN HONEY BEE, 2823 E. 4th St., Los Angeles, Calif., published by Western beekeepers, where commercial honey production is farther advanced than in any other section of the world. \$1.00 per year. Send for sample copy.

MAKE queen introduction sure. One Safin cage by mail, 25c; 5 for \$1.00.

Allen Latham, Norwichtown, Conn.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Sistema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price \$1.00.

GLEANINGS IN BEE CULTURE, published at Medina, Ohio, is the most carefully edited bee journal in the world. Its editor-in-chief is George S. Demuth. Its field editor is E. R. Root. Ask for sample copy.

### WANTED

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering.

Fred W. Muth Co.,  
204 Walnut St., Cincinnati, Ohio.

### Result of League Election

According to the recent election of the American Honey Producers' League, the following is a list of the new directors:

District No. 1—Dr. J. H. Merrill, Raynham, Mass.

District No. 2—Elmer G. Carr, Pennington, N. J.

Dist. No. 3—C. L. Sams, Raleigh, N. C.

District No. 4—Robert E. Foster, Gainesville, Fla.

District No. 5—R. H. Keltz, East Lansing, Mich.

District No. 6—James Gwin, Madison, Wis.

District No. 7—Prof. F. B. Paddock, Ames, Iowa.

District No. 8—E. G. LeSturgeon, San Antonio, Texas.

District No. 9—Frank Rauchfuss, Denver, Colo.

District No. 10—George Schweiss, Reno, Nev.

J. A. Munro,  
Election Commissioner.

### Mississippi Beekeepers Name Flood Relief Committee

At the recent meeting of the Mississippi Beekeepers' Association the president appointed a committee to investigate the losses incurred by beekeepers in the flooded area of Mississippi and make recommendations to the American Red Cross and other agencies sending donations to the unfortunate beekeepers of this section. The committee is composed of Clay Lyle of A. and M. College, J. W. Sprott of Leland, and Leroy Worthington of Leota Landing. An immediate investigation will be made and reports rendered.

## Achord Queens

The Best of Pure Three-Banded Italians

The Pick of the Honey

Makers

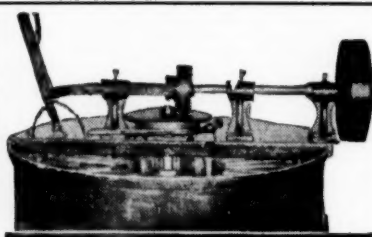
Select Young Laying Queens  
now

**75c**  
**EACH**

any number

If large lots are wanted write  
for prices stating how  
many you can use

**W. D. ACHORD**  
Fitzpatrick, Ala.



### THE HODGSON RADIAL HONEY EXTRACTOR

(Patented 1924)

Is just the right size for that  
portable extracting outfit

Manufactured by

**S. P. HODGSON & SONS**  
NEW WESTMINSTER,  
British Columbia, Canada.

### Golden Queens and Banded Bees

Untested queens	-----	\$1.00 each
Tested queens	-----	\$1.50 each
Bees	-----	\$1.50 per lb.
Nucleus	-----	\$1.50 per frame

Bees inspected; free from disease

**J. W. SHERMAN, VALDOSTA, GA.**

### A Voice From the Past

Hon. Eugene Secor, at one time general manager of the National Beekeepers' Association, was long prominent in Iowa affairs. He was a great lover of flowers and fruits as well as bees. The following letter gives a glimpse of his many-sided nature:

May 14, 1913.

My Dear Mr. Pellett:

Your long-time-ago letter has lain unanswered, but the writer thought of it a good many times. That's one consolation, isn't it? I've been wondering if you were on the platform much last winter. I hope so—that is if it was not all gratis. "Money talks," and people talk for money. How funny!

I presume you're home now, with your overalls on, digging the fragrant mold and extracting joy at every dig. You might harness that polecat and save muscle and keep your clothes clean and sweet for callers. Do you wear Dutchman's Breeches when at work, and listen to Jack-in-the-Pulpit on Sundays? Does the honeysuckle coax the bees from their lair and the spirea inspire you with poetic imaginings? Are the Lady-slippers too large for your wife's shapely feet? If so let her wear Birdfoot violets. Does the Mockorange mock Miss Rosa Rugosa Alba, and Lily of the Valley hide in the grass during the unseemly proceeding? Does Bleeding Heart still bleed for the love of Tulips that refuse to administer the healing Balm? Is Solomon's seal impressive as ever? And do the Ramblers return with the season? Do Catbirds chase your young chickens and the Robins rob the strawberry patch? Has the Grosebeak such appetite for green peas that you can't satisfy your own? Does the Hangbird hang her nest in such inaccessible places that you can't see her babies without a flying machine?

How are you getting along, anyhow? Not brooding over the foul-brood law now, are you? Got thro' the Iowa Congress in pretty good shape, didn't you?

Don't you think you ought to "inspect" our things next month? You ought to know whether our fly traps are properly adjusted, and whether the peonies have been sufficiently fertilized for the best results; whether lead arsenate has been administered during fruit bloom, to the destruction of the bees instead of codling moths.

The prospect now is that there will be something doing during the Glory month. Better come and see.

Your season is probably ten days earlier than ours. Lilacs are just beginning to bloom and the fern-

leaf peony will be out in a day or two. Tulips and narcissus are in flower. Chinese peonies will likely begin blossoming by the first of June. We'll have a few! Our seedling peonies are going to give us hundreds of new creations. I wish you could study them with me. If you can come I'll let you know the most interesting time.

Wallace's Farmer submitted to me a couple of letters whose writers were in trouble, and Successful Farming sent me one. I've had so much other work to do that my bees have had little attention. I'm all alone and wish I were triplets.

Winter got off the lap of spring at one sudden bound, and the consequence is everything needs doing all at once.

I've some garden made. Peas and potatoes are up, and the fragrant plebeian onion stands up like a line of soldiers on dress parade. (From sets.) The onion is tabooed by polite society, but is loved by the common people. It ought to be called "The Great Commoner." Dives may stick up his nose at the unctuous vegetable, but Lazarus and his kind love the flavor, and health-giving tuber. Great is Allium.

But I must quit.

Yours cordially,  
Eugene Secor.

### Cooking With Honey

The Kellogg Company of Battle Creek, Michigan, has recently issued another booklet of recipes for use with honey. This booklet is entitled "Cooking with Honey," and, like the other booklet published by this enterprising firm, it is offered free to beekeepers who will distribute copies to housewives.

The advertising manager of the Kellogg Company writes us that they have received nearly one thousand letters from beekeepers asking for booklets for distribution. Some of these beekeepers have stated that the booklets have materially helped the sale of their honey.

### A Texas Bulletin

The Texas Experiment Station publishes Bulletin No. 361, describing the "Work of the State Apicultural Laboratory from 1919 to 1926." This bulletin, of sixteen pages, describes the laboratory, gives a detail of the experimental work, details honey plant divisions in the state, and shows that they have produced and sent out in the state some two thousand choice queens and sold some eighteen hundred more, with the proceeds of which they have equipped their laboratory. This bulletin will prove of interest to all Texas beekeepers.